



MT MARGARET ESTATE STAGE 12 OPERATIONAL WORKS ALICE RIVER, QLD 4817

LOCALITY PLAN KEY

LEGEND

<u>EXISTING</u>	<u>PROPOSED</u>
— — — — —	KERB ONLY
— — — — —	KERB AND CHANNEL
— — — — —	ROAD SHOULDER
— — — — —	CONTOUR (0.250m)
— — — — —	CONTOUR (1.00m)
— — — — —	ROAD EDGE UNSEALED
— — — — —	TOP OF BATTER
— — — — —	BOTTOM OF BATTER
	●
	ROAD EDGE GUIDE POST

SERVICES (PUP) LEGEND

	<u>EXISTING</u>	<u>PROPOSED</u>
DRAINAGE (unknown dia.)	— D(*) —	
DRAINAGE (known dia.)	—  —	—  —
WATER MAIN	— W(*) —	— W —

(*) - DENOTES QUALITY LEVEL AS PER A S 5488-2013

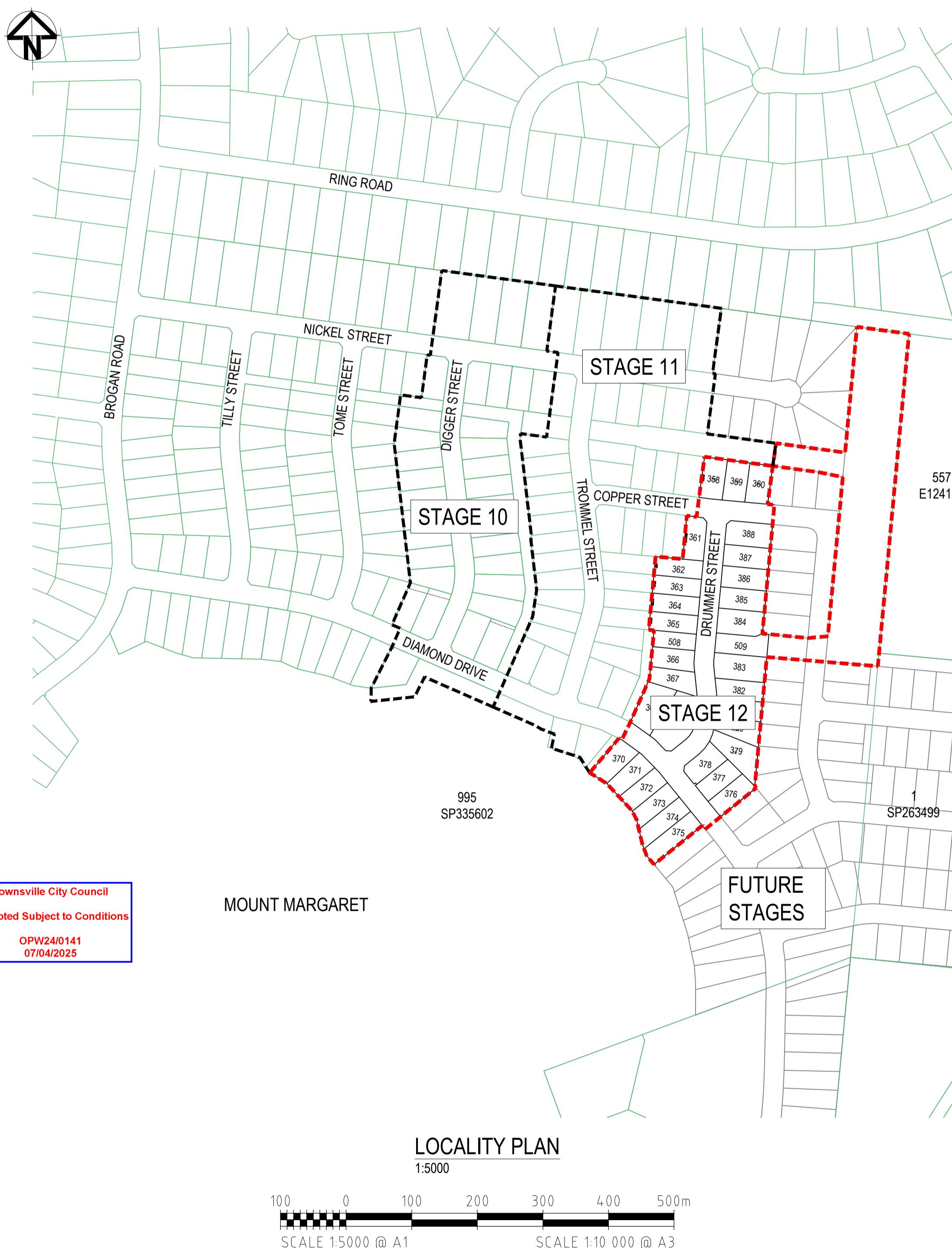
NOTES:

1. THESE DRAWINGS SHALL BE READ IN CONJUNCTION WITH ALL OTHER CONSULTANTS DRAWINGS AND SPECIFICATIONS.
2. BEFORE PROCEEDING WITH THE WORK ANY DISCREPANCIES IN THE CONTRACT DOCUMENTS SHALL BE REFERRED FOR DECISION TO THE SUPERINTENDENT.
3. DO NOT SCALE FROM DRAWINGS. IF IN DOUBT, ASK!!
4. CONTRACTOR SHALL VERIFY ALL LOCATIONS OF SERVICES, ALL DIMENSIONS AND LEVELS PRIOR TO CONSTRUCTION.
5. ALL MATERIALS & WORKMANSHIP SHALL BE IN ACCORDANCE WITH THE SPECIFICATIONS AND THE LOCAL AUTHORITY'S BY-LAWS.
6. THE CONTRACTOR IS RESPONSIBLE TO OBTAIN ALL RELEVANT APPROVALS PRIOR TO COMMENCEMENT OF WORKS.

SURVEY NOTES:

1. SERVICES SHOWN HAVE BEEN LOCATED BY FIELD SURVEY MEASUREMENT FOR SURFACE INFORMATION AND INVERT LEVEL INFORMATION AS SHOWN, WHERE POSSIBLE. SERVICE PROVIDER RECORDS HAVE BEEN USED TO INDICATE UNDERGROUND SERVICE LOCATIONS SHOWN THROUGHOUT THE CONTOUR AND DETAIL SURVEY. PRIOR TO ANY DEMOLITION CONSTRUCTION OR EXCAVATION, THE RELEVANT AUTHORITIES SHOULD BE CONTACTED FOR LOCATION OF SERVICES.
2. DUE TO THE ACCURACY OF SURVEY PROVIDED ALL SETOUT AND LEVELS MUST BE CONFIRMED ON SITE PRIOR TO COMMENCING ANY WORKS.
3. EXISTING GROUND LEVELS HAVE BEEN DERIVED FROM DETAIL SURVEY COMPLETED BY ROWLANDS SURVEYS ON THE 24TH OF JULY 2024 USING THE FOLLOWING SPATIAL PARAMETERS:

LEVEL DATUM: AHD
REF BM No: PM 193516
REDUCED LEVEL: 54.562
LOCATION: DIAMOND DRIVE



CIVIL ENGINEERING DRAWINGS		
Sheet Number	Sheet Title	Rev
C001	LOCALITY PLAN AND DRAWING INDEX	D
C002	ROADS CONTROL LINE SETOUT	C
C003	DRAINAGE CONTROL LINE SETOUT	D
C051	EARTHWORKS, ROADWORKS AND DRAINAGE SHEET 1	C
C052	EARTHWORKS, ROADWORKS AND DRAINAGE SHEET 2	D
C053	EARTHWORKS, ROADWORKS AND DRAINAGE SHEET 3	B
C061	ROADS LONGITUDINAL SECTIONS SHEET 1	D
C062	ROADS LONGITUDINAL SECTIONS SHEET 2	C
C063	DRAINAGE CHANNEL LONGITUDINAL SECTION	C
C071	INTERSECTION SETOUT DETAILS SHEET 1	D
C072	INTERSECTION SETOUT DETAILS SHEET 2	E
C081	ROADS CROSS SECTIONS SHEET 1	B
C082	ROADS CROSS SECTIONS SHEET 2	B
C083	ROADS CROSS SECTIONS SHEET 3	B
C084	ROADS CROSS SECTIONS SHEET 4	B
C085	OPEN CHANNEL SECTIONS SHEET 1	A
C086	OPEN CHANNEL SECTIONS SHEET 2	A
C087	OPEN CHANNEL SECTIONS SHEET 3	A
C101	EROSION AND SEDIMENT CONTROL LAYOUT PLAN	B
C102	EROSION AND SEDIMENT CONTROL NOTES AND DETAILS SHEET 1	C
C103	EROSION AND SEDIMENT CONTROL NOTES AND DETAILS SHEET 2	C
C201	BULK EARTHWORKS NOTES, DETAIL AND LEGEND	B
C202	BULK EARTHWORKS LAYOUT PLAN	B
C301	SURFACE TREATMENT LAYOUT PLAN	B
C401	CULVERT LAYOUT AND LONGITUDINAL SECTIONS	C
C402	DRAINAGE DETAILS	B
C601	WATER RETICULATION LAYOUT PLAN	B
C602	WATER RETICULATION NOTES AND DETAILS	B

REFERENCED STANDARD DRAWINGS	
DRAWING No.	DRAWING TITLE
SD-020D	TCC - CONCRETE KERBING
SD-060A	TCC - TRAFFIC SIGN INSTALLATION
SD-065A	TCC - STREET NAME SIGN AND INSTALLATION DETAILS
SD1260	TMR - R C BOX CULVERTS AND SLAB LINK BOX CULVERTS - CULVERTS HEIGHT = 375 TO 600
SD1350	CULVERTS - INSTALLATION, BEDDING AND FILLING/BACKFILLING AGAINST/OVER CULVERTS

			SCALE 1:50000 A1			SCALE 1:100000 A3			6TH DECEMBER, 2024								
REVISIONS	D	B.L.	10.03.25	APPROVAL ISSUE - SURVEY DATUM		HORIZ. DATUM		MT MARGARET GRID		CERTIFICATION <i>Badongtree</i> BRETT LANGTREE RPEQ NO. 11932	MT MARGARET ESTATE STAGE 12 - OPERATIONAL WORKS			SHEET	ASS HORN		
	C	B.L.	13.12.24	APPROVAL ISSUE - SHEET LIST UPDATED		VERT. DATUM		AHD									
	B	B.L.	06.12.24	APPROVAL ISSUE		DRG. FILE	0944	DATE	COPYRIGHT These designs and drawings are copyright and are not to be used or reproduced without the written permission of LANGTREE CONSULTING PTY LTD (ACN 29 611 368 024). The contents of this drawing are electronically generated, are confidential and may only be used for the purpose for which they were intended. This is an uncontrolled document issued for information purposes only, unless the checked sections are signed and approved. Figured dimensions take precedence over scale. Do not scale from this drawing.	NICKEL STREET ALICE RIVER, QLD, 4817	LOCALITY PLAN AND DRAWING INDEX	SHEET	1028				
	A	B.L.	18.11.24	PRELIMINARY ISSUE		DESIGN	B.L.	NOV '24					A				
	No.	BY	DATE	DESCRIPTION		DRAWN	C.B.P.	NOV '24					B				
									C								

CONTROL LINE 'A' SETOUT TABLE - DIAMOND DRIVE								
POINT	CHAINAGE	EASTING	NORTHING	BEARING	RAD / SPIRAL	TANGENT	DEF ANGLE	ARC LENGTH
TC	129.292	58420.475	861012.750	104d09'46"				
IP3	209.683	58501.226	860992.372		250	52.176	36d50'56"	104.352
START	219.017	58501.720	860975.819	124d43'34"				
CT	290.075	58553.624	860927.640	141d00'41"				
IP4	408.546	58628.161	860835.556	141d00'41"				

CONTROL LINE 'D' SETOUT TABLE - COPPER STREET								
POINT	CHAINAGE	EASTING	NORTHING	BEARING	RAD / SPIRAL	TANGENT	DEF ANGLE	ARC LENGTH
IP1	160.097	58581.784	861329.425	97d41'10"				
TC	179.669	58601.180	861326.807	97d41'10"				
IP2	189.961	58611.382	861325.430		500.000	10.294	2d21'32"	20.586
CT	200.254	58621.631	861324.475	95d19'38"				
IP3	304.813	58725.738	861314.767	95d19'38"				

CONTROL LINE 'E' SETOUT TABLE - NEW ROAD								
POINT	CHAINAGE	EASTING	NORTHING	BEARING	RAD / SPIRAL	TANGENT	DEF ANGLE	ARC LENGTH
IP1	0.000	58550.136	860931.853	51d00'41"				
TC	49.146	58588.336	860962.775	51d00'41"				
IP2	69.198	58604.814	860976.113		50.000	21.201	45d57'19"	40.103
CT	89.250	58605.683	860997.232	5d03'23"				
TC	122.473	58609.611	861030.326	5d03'23"				
IP3	132.107	58610.463	861039.951		100.000	9.663	11d02'20"	19.267
CT	141.740	58609.456	861049.562	354d01'02"				
TC	172.144	58606.287	861079.800	354d01'02"				
IP4	182.014	58605.255	861089.649		100.000	9.902	11d18'36"	19.740
CT	191.884	58606.174	861099.508	5d19'38"				
IP5	417.314	58627.103	861323.964	5d19'38"				

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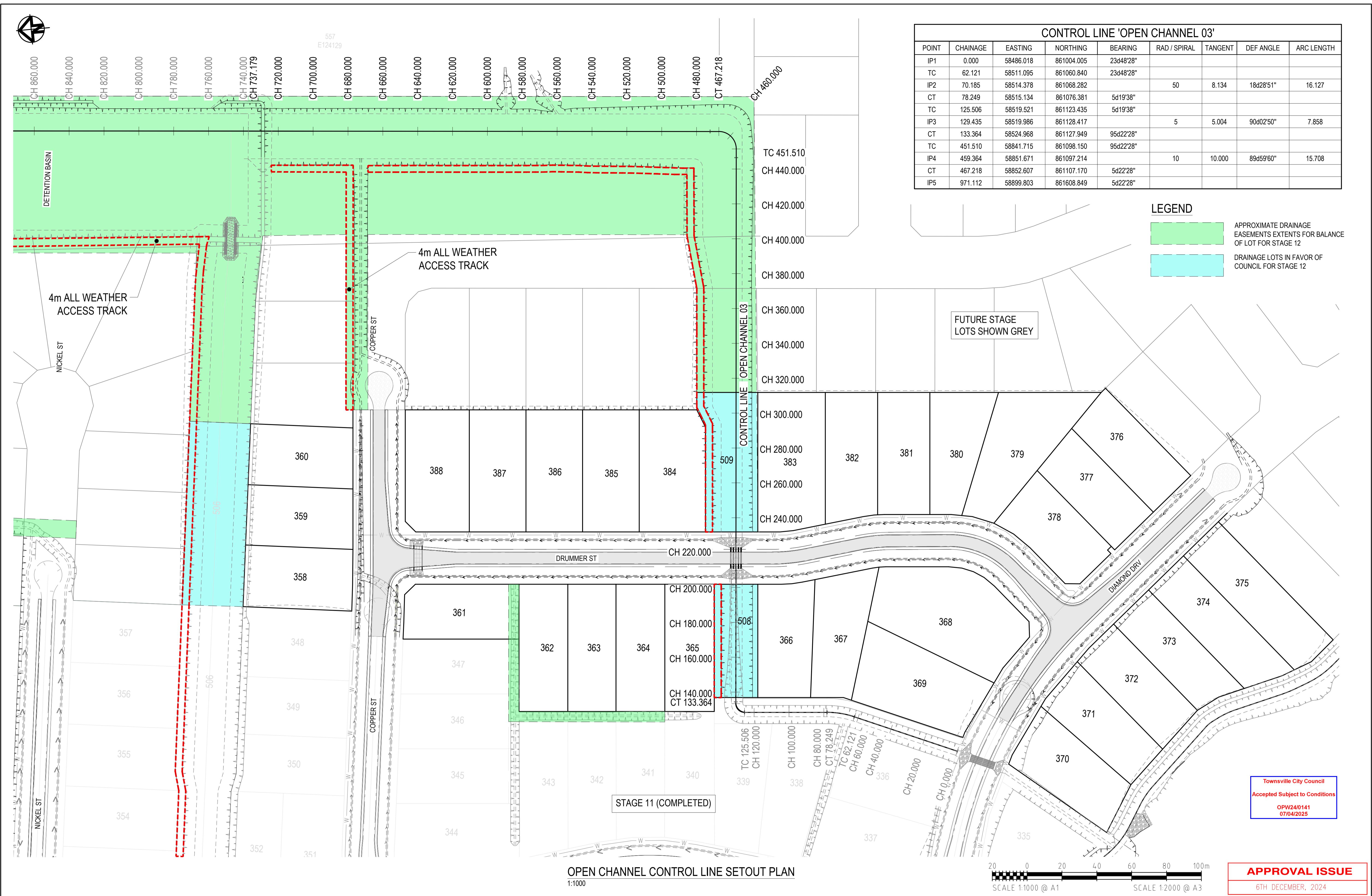


REVISIONS	C	B.L.	13.12.24	APPROVAL ISSUE - TABLE LABEL UPDATED	HORIZ. DATUM		MT MARGARET GRID		CERTIFICATION <i>Brett Langtree</i> BRETT LANGTREE RPEQ NO. 11932	DRG. FILE	0944	DATE	VERT. DATUM	AHD	COPYRIGHT C	These designs and drawings are copyright and are not to be used or reproduced without the written permission of LANGTREE CONSULTING PTY LTD (ACN 281 368 024). The contents of this drawing are electronically generated, are confidential and may only be used for the purpose for which they were intended. This is an uncontrolled document issued for internal purposes only. The ticked boxes are to be checked when the drawing is approved. Figured dimensions take precedence over scale. Do not scale from this drawing.
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	A	B.L.	18.11.24	PRELIMINARY ISSUE												
	No.	BY	DATE	DESCRIPTION	DRAWN	C.B.P.	NOV '24									

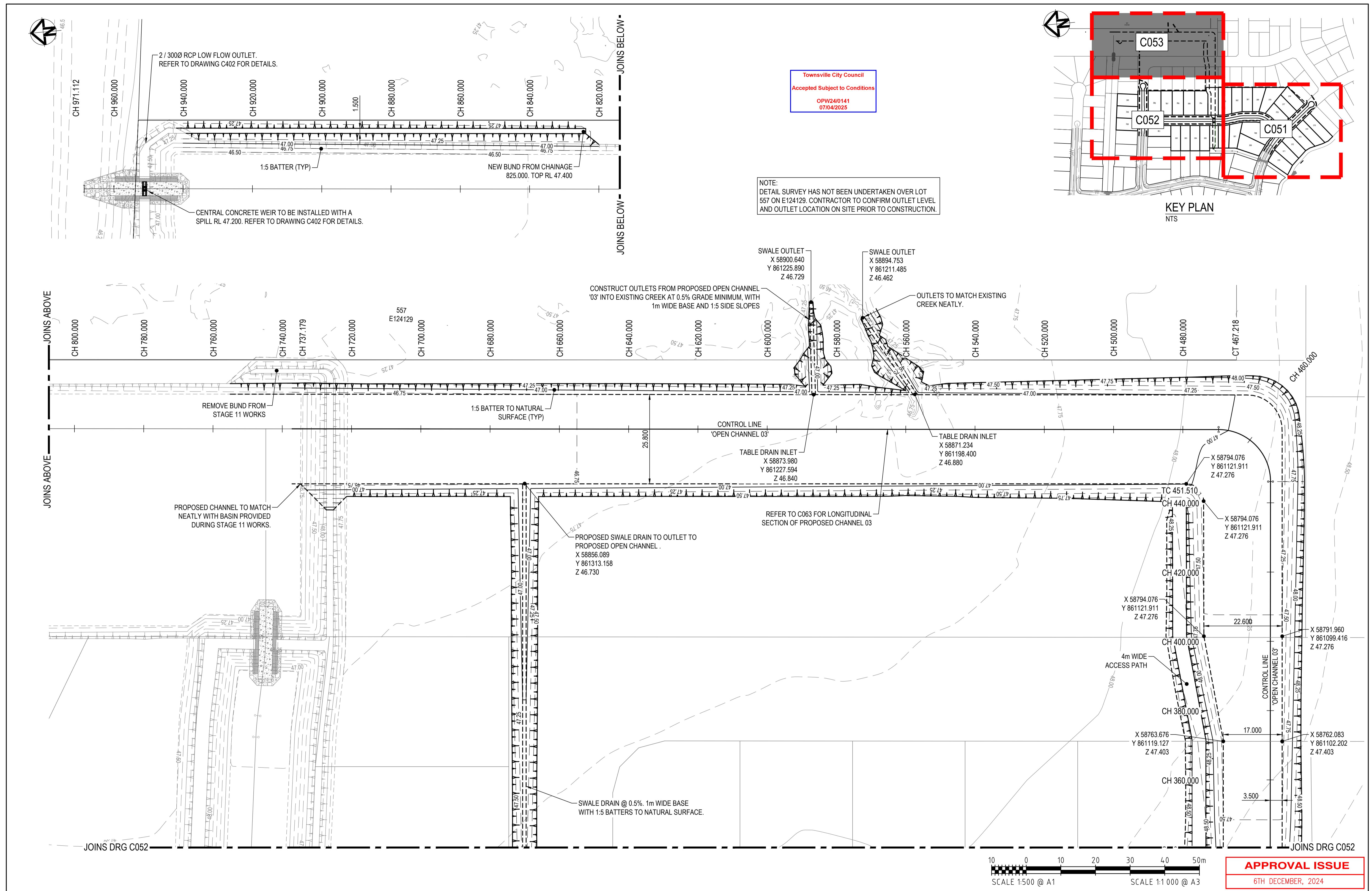
Langtree Consulting
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MT MARGARET ESTATE STAGE 12 - OPERATIONAL WORKS
NICKEL STREET
ALICE RIVER, QLD, 4817
ROADS CONTROL LINE SETOUT

SCALE 1:1000
SHEET 2 OF 28
REVISION A B C
DRG No. 0944 - C002

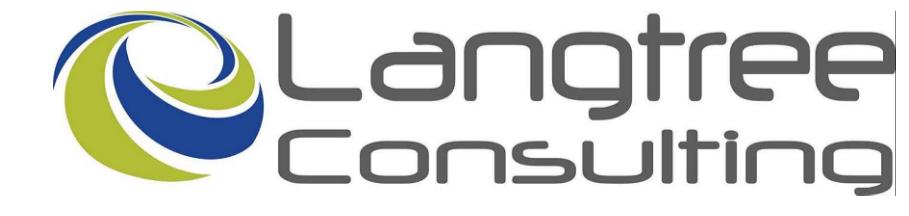


REVISIONS	D	B.L.	12.03.25	APPROVAL ISSUE - EASEMENTS UPDATE	HORIZ. DATUM		MT MARGARET GRID		CERTIFICATION <i>Brett Langtree</i> BRETT LANGTREE RPEQ NO. 11932	DRAWN	C.B.P.	NOV '24	VERT. DATUM	AHD	DRG. FILE	0944	DATE	DESIGN	B.L.	NOV '24	MT MARGARET ESTATE STAGE 12 - OPERATIONAL WORKS						SCALE	1:1000
					REVISION	BY	DATE	DESCRIPTION													m	e	0400 699 979	brett@langtreeconsulting.com.au	NICKEL STREET	ALICE RIVER, QLD, 4817	DRAINAGE CONTROL LINE SETOUT	SCALE
	C	B.L.	06.12.24	APPROVAL ISSUE - CERTIFICATION APPLIED																								
	B	B.L.	06.12.24	APPROVAL ISSUE																								
	A	B.L.	18.11.24	PRELIMINARY ISSUE																								



REVISIONS						
						HO
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	B	B.L.	06.12.24	APPROVAL ISSUE		D
	A	B.L.	18.11.24	PRELIMINARY ISSUE		D
	No.	BY	DATE	DESCRIPTION		D

Z. DATUM	MT MARGARET GRID	CERTIFICATION
T. DATUM	AHD	<i>Badongtree</i>
FILE	0944	DATE
GN	B.L.	NOV '24
WN	C.B.P.	NOV '24



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e brett@langtreeconsulting.com.au

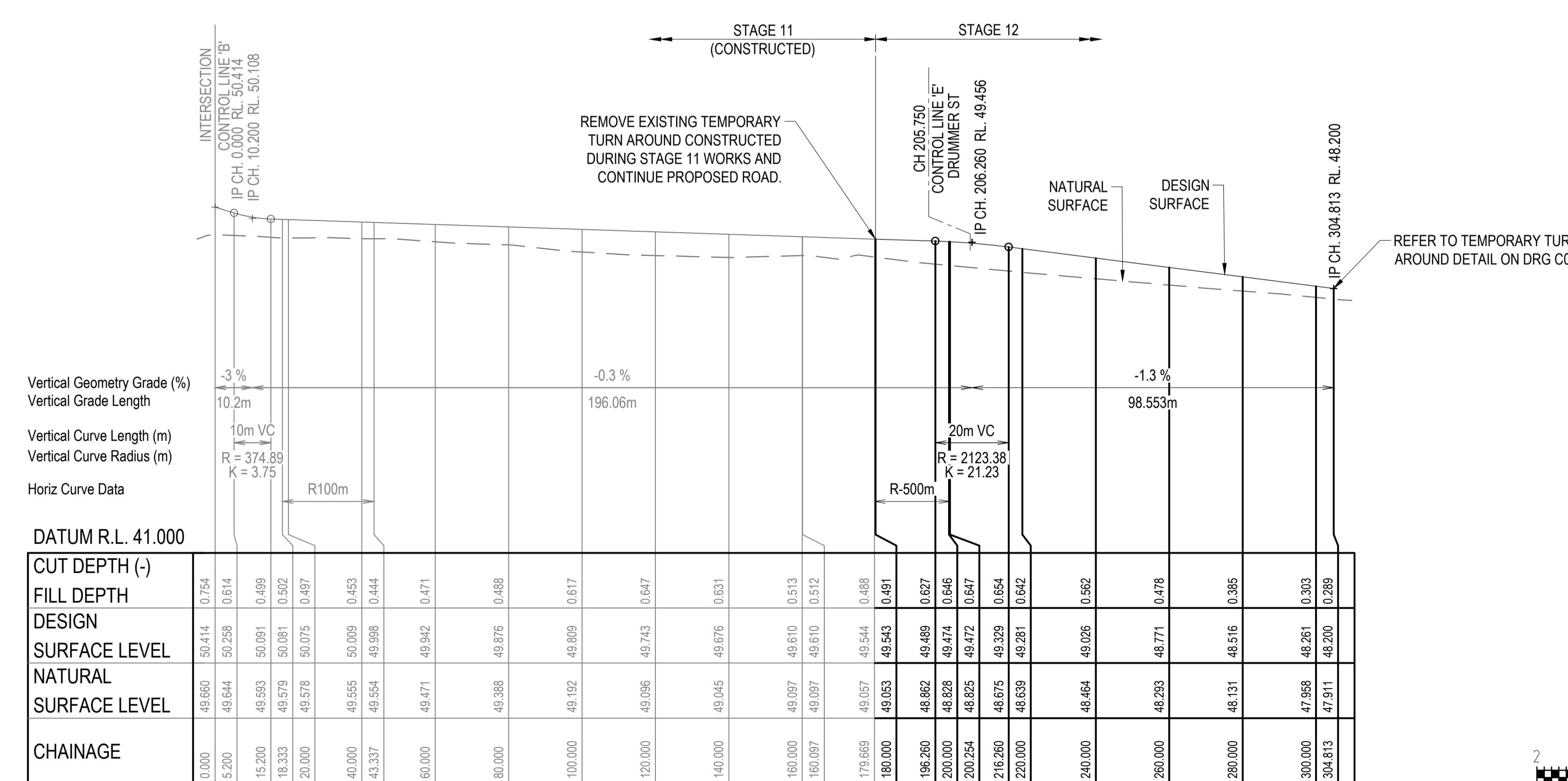
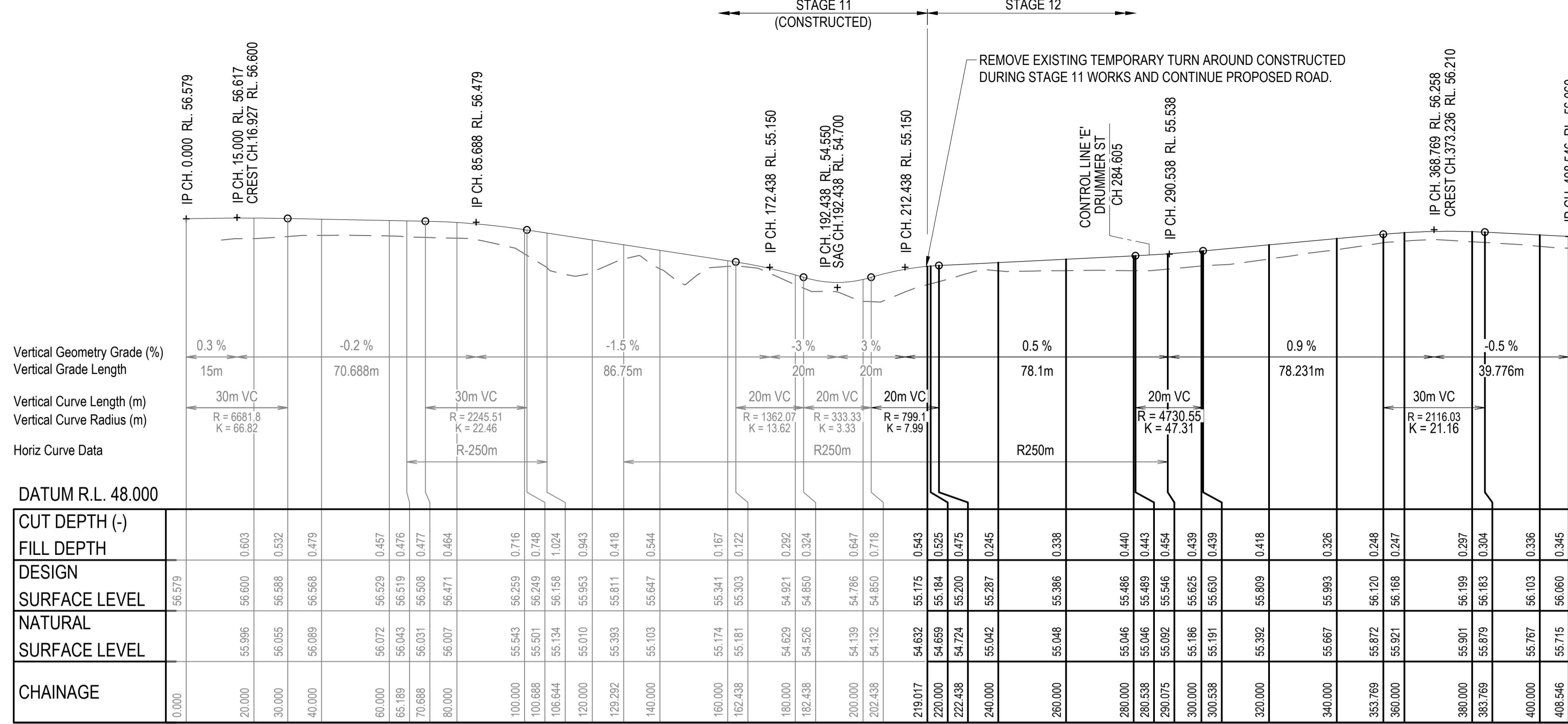
MT MARGARET ESTATE STAGE 12 - OPERATIONAL WORKS

NICKEL STREET
ALICE RIVER, QLD, 4817

EARTHWORKS, ROADWORKS AND DRAINAGE SHEET 3

APPROVAL ISSUE

6TH DECEMBER, 2024



REFER TO DRAWING C002 FOR ROAD SETOUT

REVISIONS					HORIZ. DATUM
	D	B.L.	17.03.25	APPROVAL ISSUE - TEXT UPDATED	VERT. DATUM
	C	B.L.	13.12.24	APPROVAL ISSUE - TEXT REMOVED	DRG. FILE
	B	B.L.	06.12.24	APPROVAL ISSUE	DESIGN
	A	B.L.	18.11.24	PRELIMINARY ISSUE	
	No.	BY	DATE	DESCRIPTION	DRAWN

T MARGARET GRID	CERTIFICATION
AHD	

RPEQ NO. 11

The logo for Langtree Consulting features a stylized graphic on the left composed of three overlapping curved bands in blue, green, and white. To the right of the graphic, the word "Langtree" is written in a large, bold, dark grey sans-serif font. Below "Langtree", the word "Consulting" is written in a slightly smaller, bold, dark grey sans-serif font.

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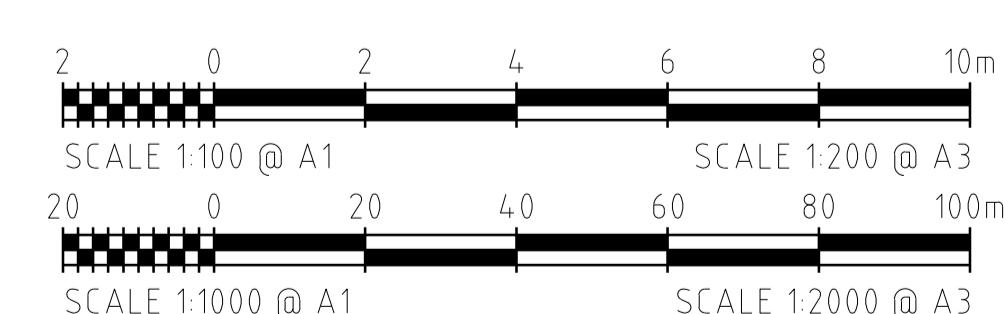
MT MARGARET ESTATE STAGE 12 - OPERATIONAL WORKS

**NICKEL STREET
ALICE RIVER, Q.I.D. 4817**

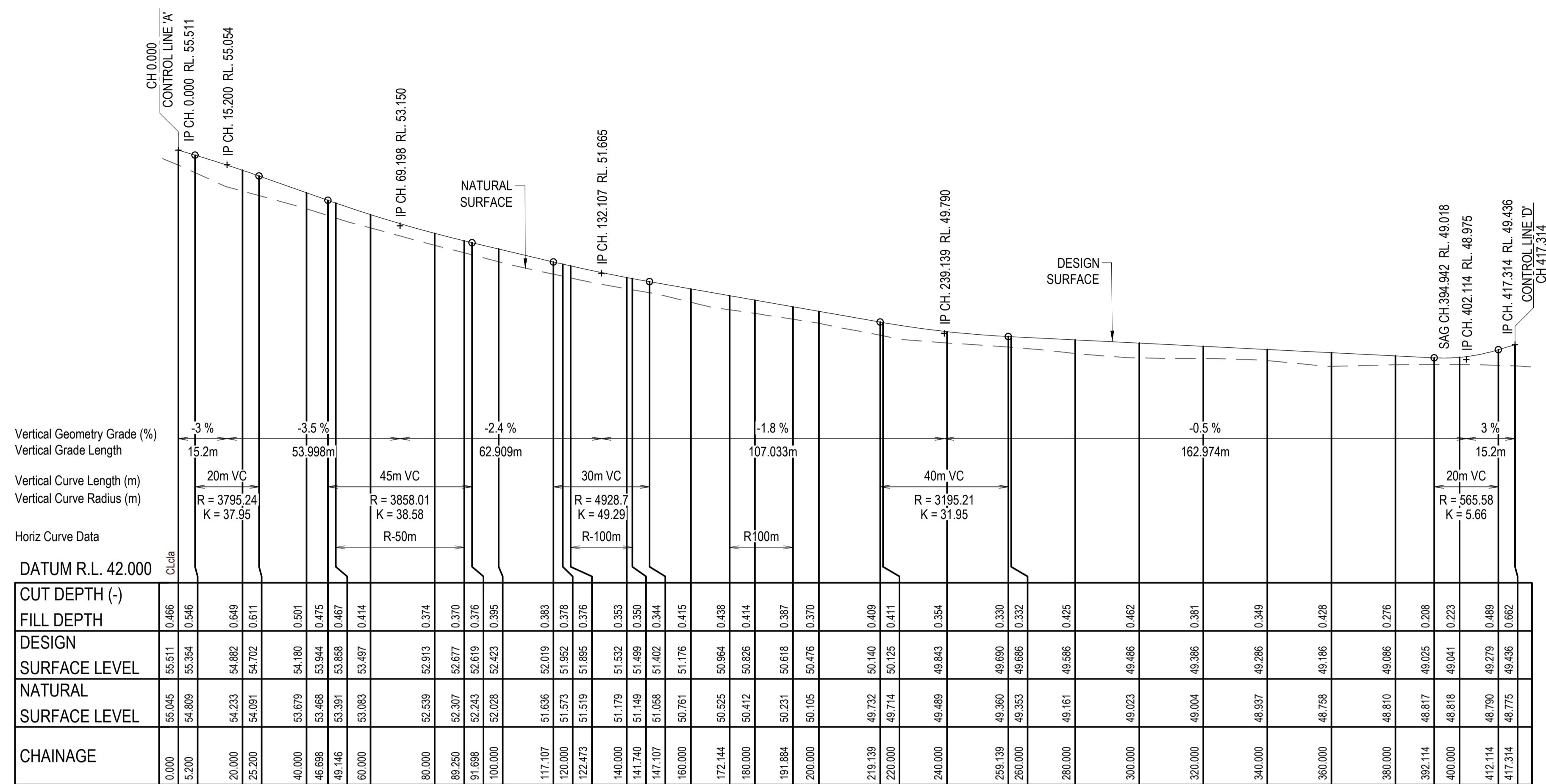
ROADS LONGITUDINAL SECTIONS SHEET 1

ROVAL ISSUE

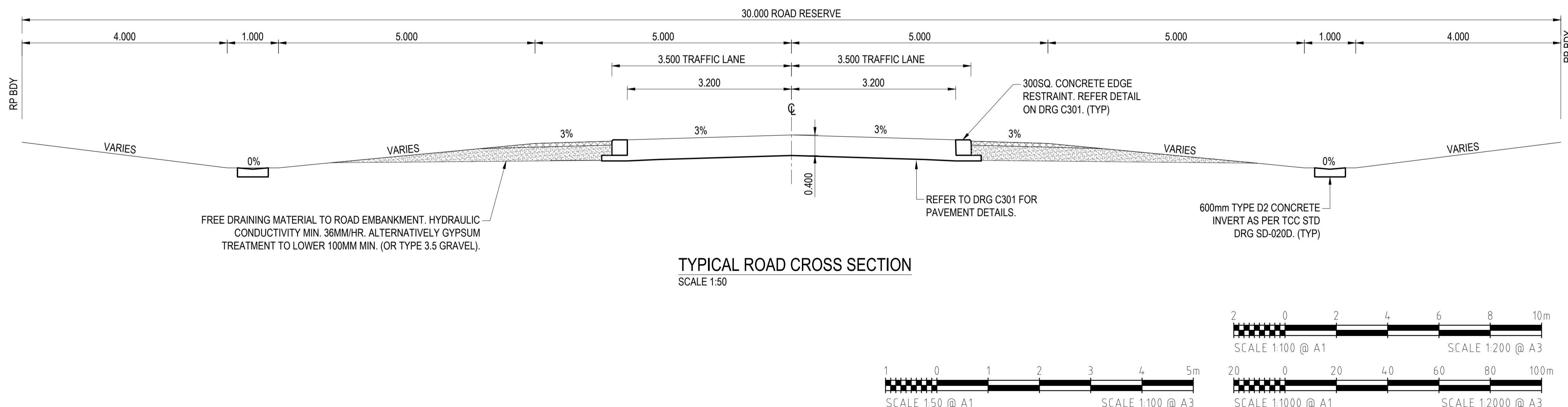
6TH DECEMBER, 2024



APPROVAL ISSUE					
6TH DECEMBER, 2024					
SCALE	AS SHOWN				
	7 OF 28				
REVISION	A	B	C	D	
DRG No.	0944 - C061				



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6TH DECEMBER, 2024

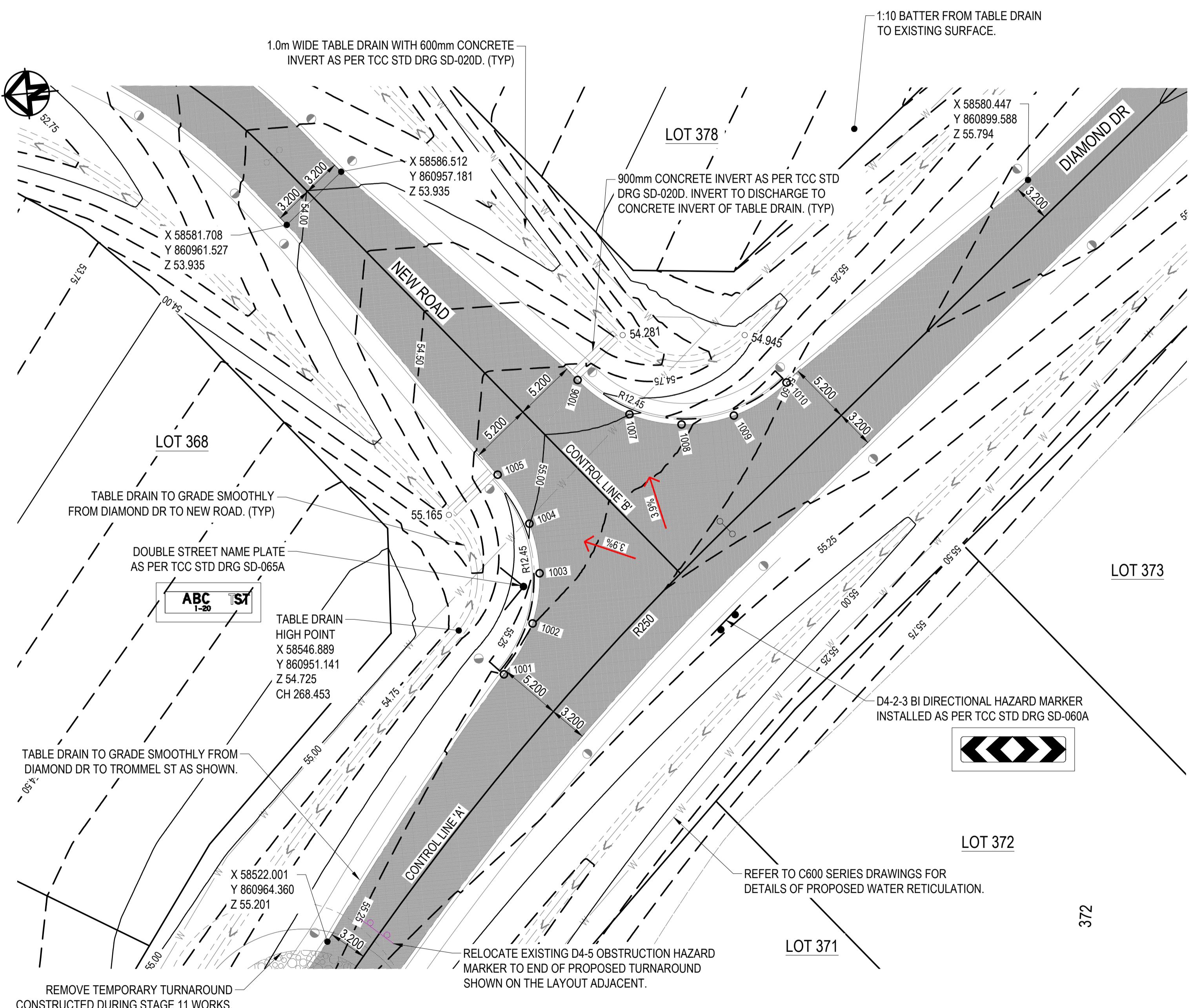
REFER TO DRAWING C002 FOR ROAD SETOUT				SCALE 1:50 @ A1			SCALE 1:100 @ A3			SCALE 1:100 @ A1			SCALE 1:100 @ A3			6TH DECEMBER, 2024		
REVISIONS				HORIZ. DATUM		MT MARGARET GRID		CERTIFICATION										
				VERT. DATUM		AHD		<i>Brett Langtree</i>		BRETT LANGTREE RPEQ NO. 11932								
	C	B.L.	17.03.25	APPROVAL ISSUE - MINOR TEXT UPDATES		DRG. FILE	0944	DATE	COPYRIGHT 									
	B	B.L.	06.12.24	APPROVAL ISSUE		DESIGN	B.L.	NOV '24										
	A	B.L.	18.11.24	PRELIMINARY ISSUE		DRAWN	C.B.P.	NOV '24										
	No.	BY	DATE	DESCRIPTION														

SIGNS LEGEND



INTERSECTION SETOUT TABLE - LIP OF KERB

POINT	EASTING	NORTHING	LEVEL
1001	58375.919	860947.446	55.272
1002	58547.097	860944.649	55.246
1003	58551.251	860943.659	55.142
1004	58555.496	860944.131	55.000
1005	58559.852	860946.408	54.836
1006	58567.173	860938.954	54.803
1007	58563.885	860934.874	55.001
1008	58562.624	860930.581	55.205
1009	58562.963	860926.119	55.385
1010	58565.329	860921.444	55.490



KERB RETURN SETOUT - INTERSECTION OF DIAMOND DR AND NEW ROAD

REFER TO DRAWING C001 FOR GENERAL LEGEND



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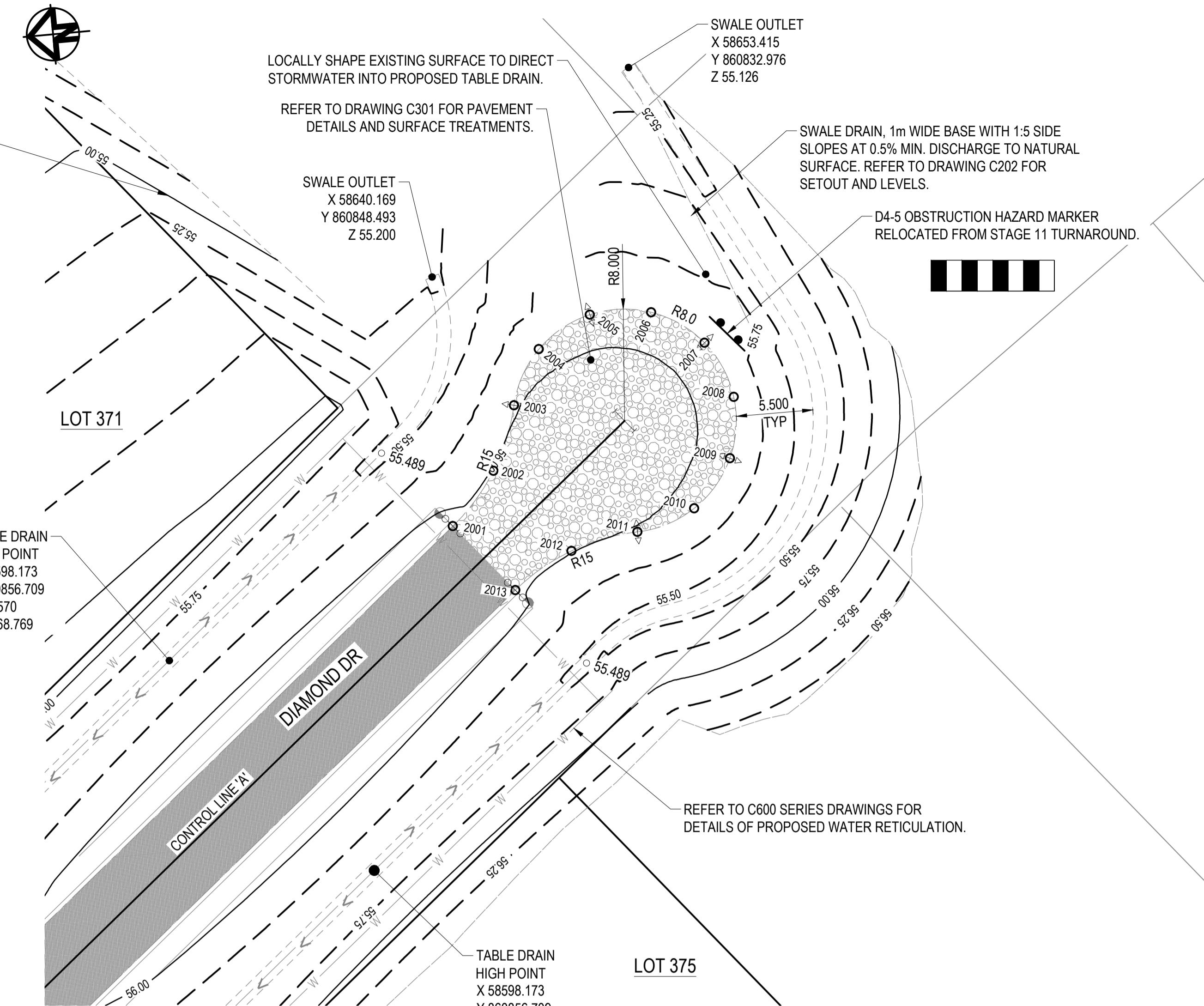
MT MARGARET ESTATE STAGE 12 - OPERATIONAL WORKS

**NICKEL STREET
ALICE RIVER QLD 4817**

INTERSECTION SETOUT DETAILS SHEET 1

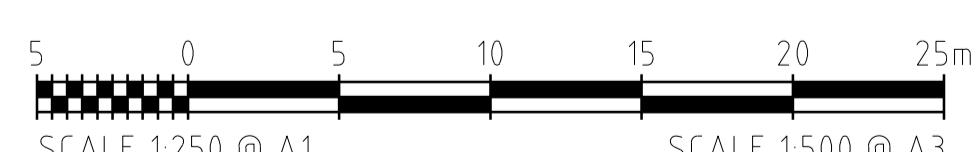
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REVISIONS	No.	BY	DATE	DESCRIPTION
	D	B.L.	19.03.25	APPROVAL ISSUE - KERB RADIUS ADDED
	C	B.L.	17.03.25	APPROVAL ISSUE - MINOR UPDATES
	B	B.L.	06.12.24	APPROVAL ISSUE
	A	B.L.	18.11.24	PRELIMINARY ISSUE

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RT. DATUM		AHD		
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AWN	C.B.P.		NOV '24	BRETT LANGTREE RPEQ NO. 1



TEMPORARY CULDESAC SETOUT - DIAMOND DR

CULDESAC SETOUT TABLE - EDGE OF ROADWAY			
POINT	EASTING	NORTHING	LEVEL
2001	58621.801	860848.500	55.949
2002	58625.474	860845.239	55.912
2003	58630.004	860843.341	55.882
2004	58633.842	860841.189	55.861
2005	58635.961	860837.333	55.846
2006	58635.721	860832.940	55.837
2007	58633.195	860829.338	55.834
2008	58629.145	860827.616	55.837
2009	58624.798	860828.297	55.846
2010	58621.469	860831.173	55.861
2011	58620.163	860835.375	55.882
2012	58619.250	860840.201	55.912
2013	58616.826	860844.473	55.949



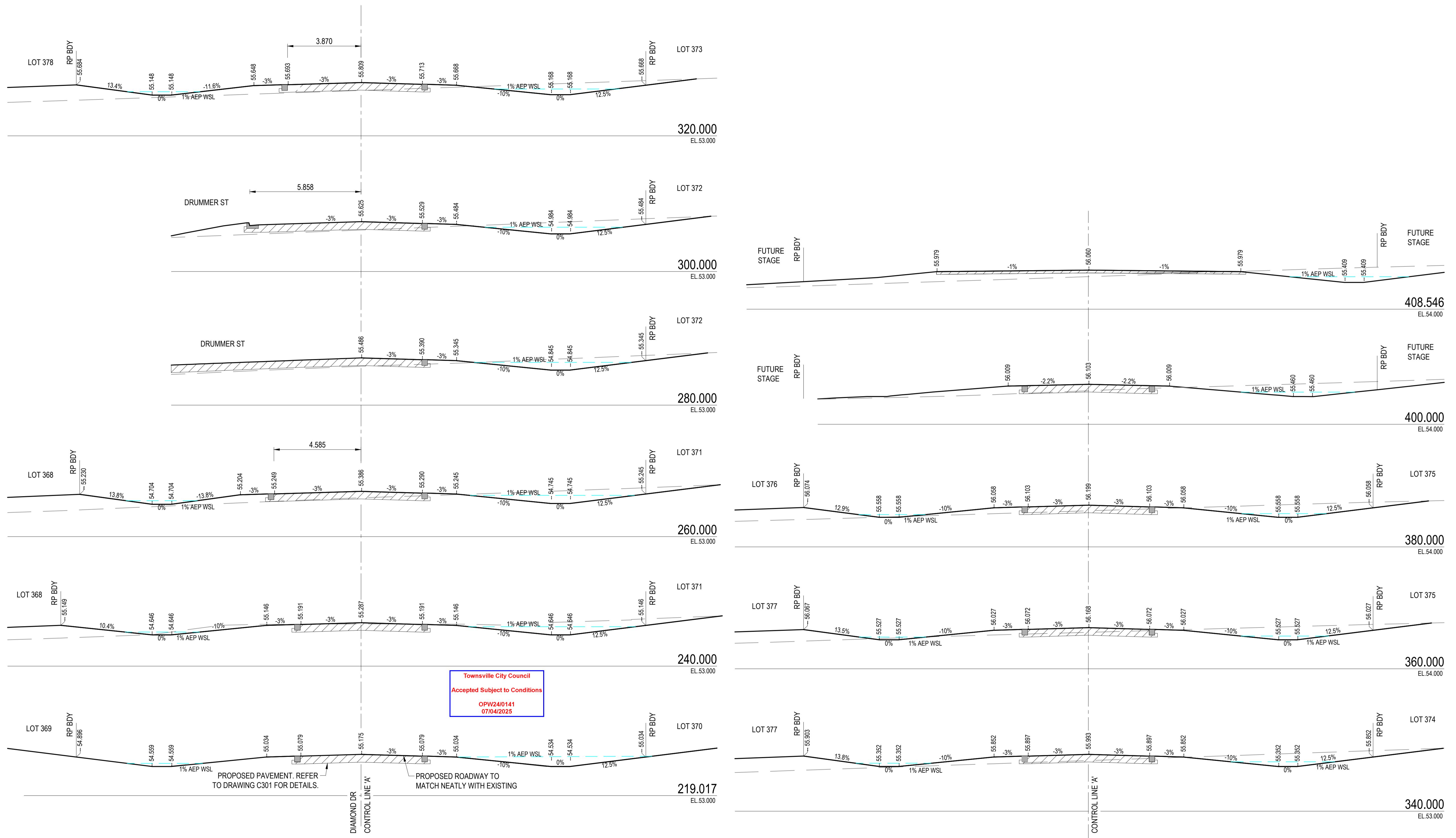
APPROVAL ISSUE

6TH DECEMBER, 2024

JOURNAL AS ONE

REVISION	A	B	C

DRG No. 0944 - C



ROADS CROSS SECTIONS - DIAMOND DRV



REVISIONS	No.	BY	DATE	DESCRIPTION	
				APPROVAL ISSUE	APPROVAL ISSUE - 1% AEP WSL UPDATE
B	B.L.	13.03.25			
A	B.L.	06.12.24			

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	VERT. DATUM		AHD		
	DRG. FILE	0944		DATE	COPYRIGHT 
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	DRAWN	C.B.P.		NOV '24	

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MT MARGARET ESTATE STAGE 12 - OPERATIONAL WORKS

NICKEL STREET
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ROADS CROSS SECTIONS SHEET 1

APPROVAL ISSUE

6TH DECEMBER, 2024

6TH DECEMBER, 2024

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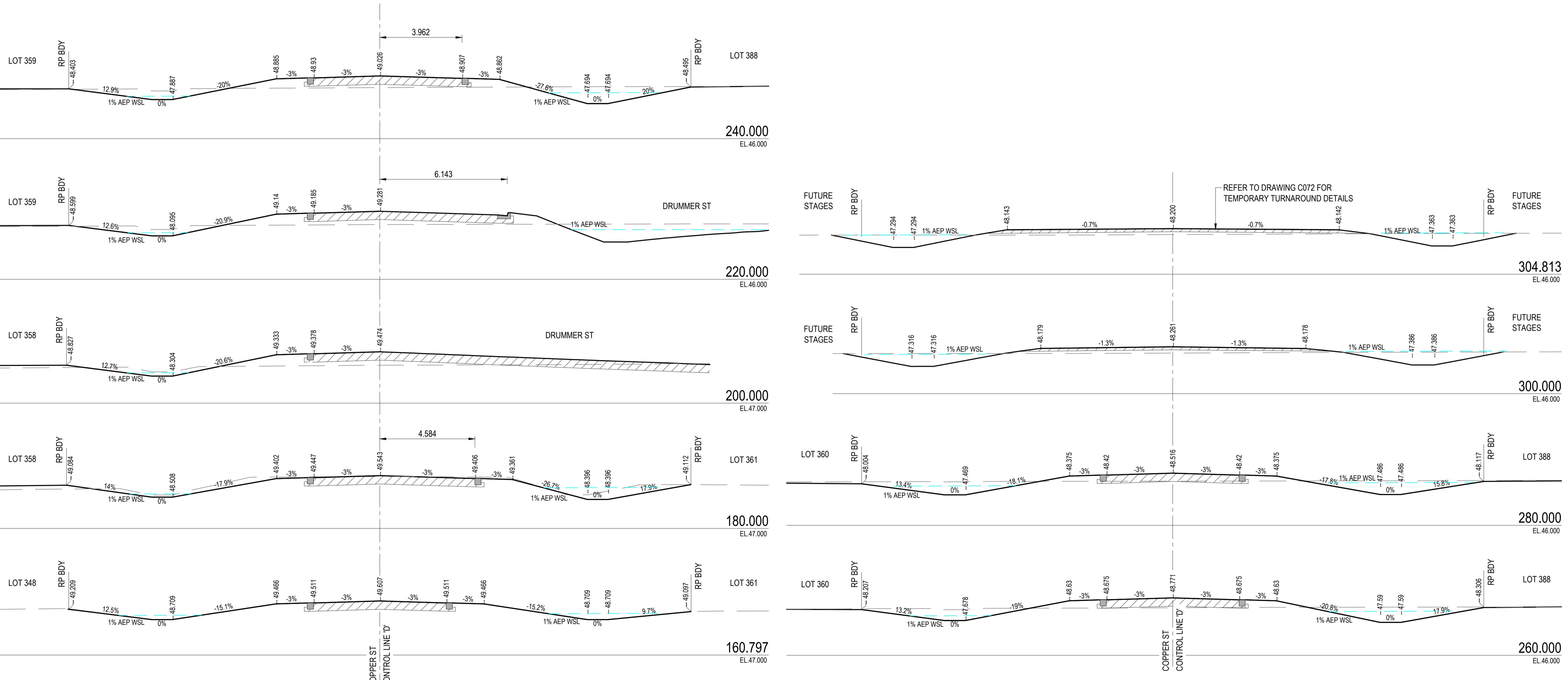
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SHEET

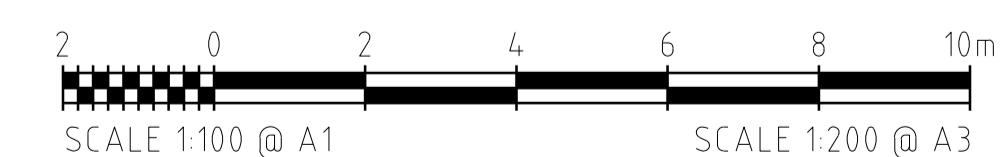
12 OF 20

		A	B	
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ROADS CROSS SECTIONS - COPPER ST
SCALE 1:100



APPROVAL ISSUE

6TH DECEMBER, 2024

REVISIONS				HORIZ. DATUM	MT MARGARET GRID		CERTIFICATION <i>Brett Langtree</i> BRETT LANGTREE RPEQ NO. 11932
	VERT. DATUM	AHD		DRG. FILE	0944	DATE	
B	B.L.	13.03.25	APPROVAL ISSUE - 1% AEP WSL UPDATE				
A	B.L.	06.12.24	APPROVAL ISSUE		DESIGN	B.L.	NOV '24
No.	BY	DATE	DESCRIPTION		DRAWN	C.B.P.	NOV '24


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MT MARGARET ESTATE STAGE 12 - OPERATIONAL WORKS
NICKEL STREET
ALICE RIVER, QLD, 4817,
ROADS CROSS SECTIONS SHEET 4

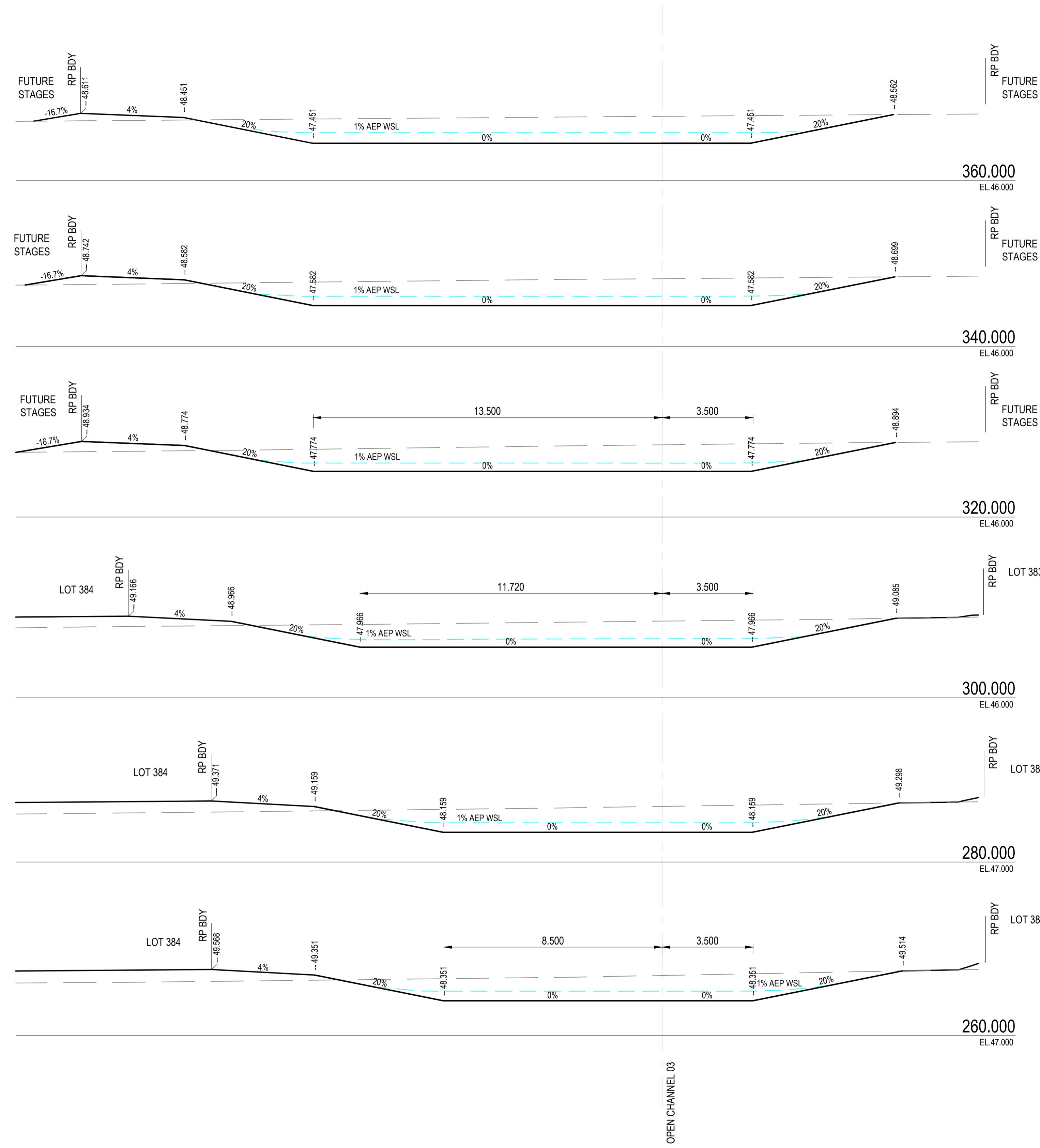
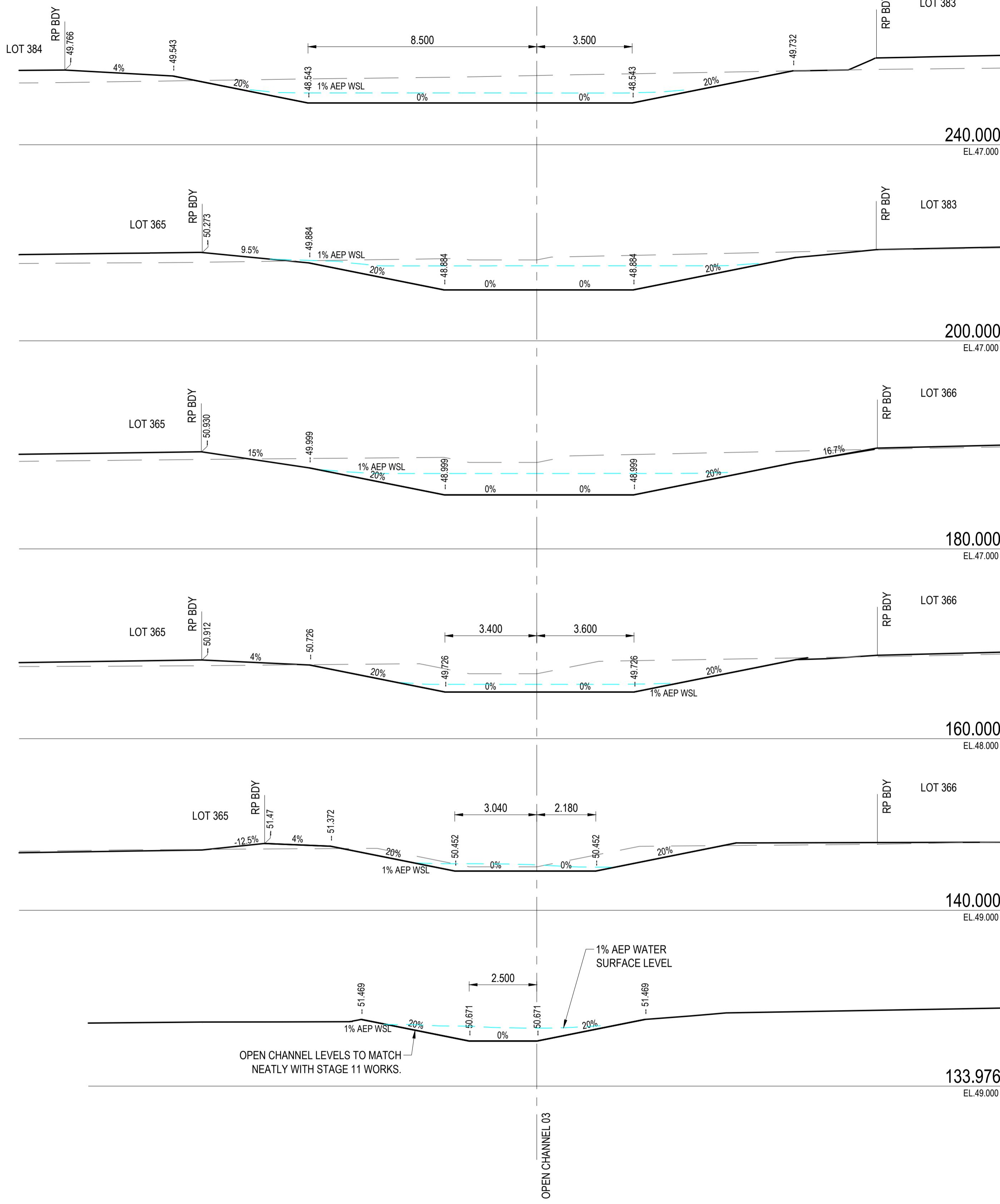
SCALE	1:100	
SHEET	15 OF 28	
REVISION	A	B
DRG No.	0944 - C084	

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DRAINAGE CROSS SECTIONS OPEN CHANNEL '03'

	HORIZ. DATUM	MT MARGARET G
	VERT. DATUM	AHD
	DRG. FILE	0944
	DESIGN	B.L.
	DRAWN	C.B.P.

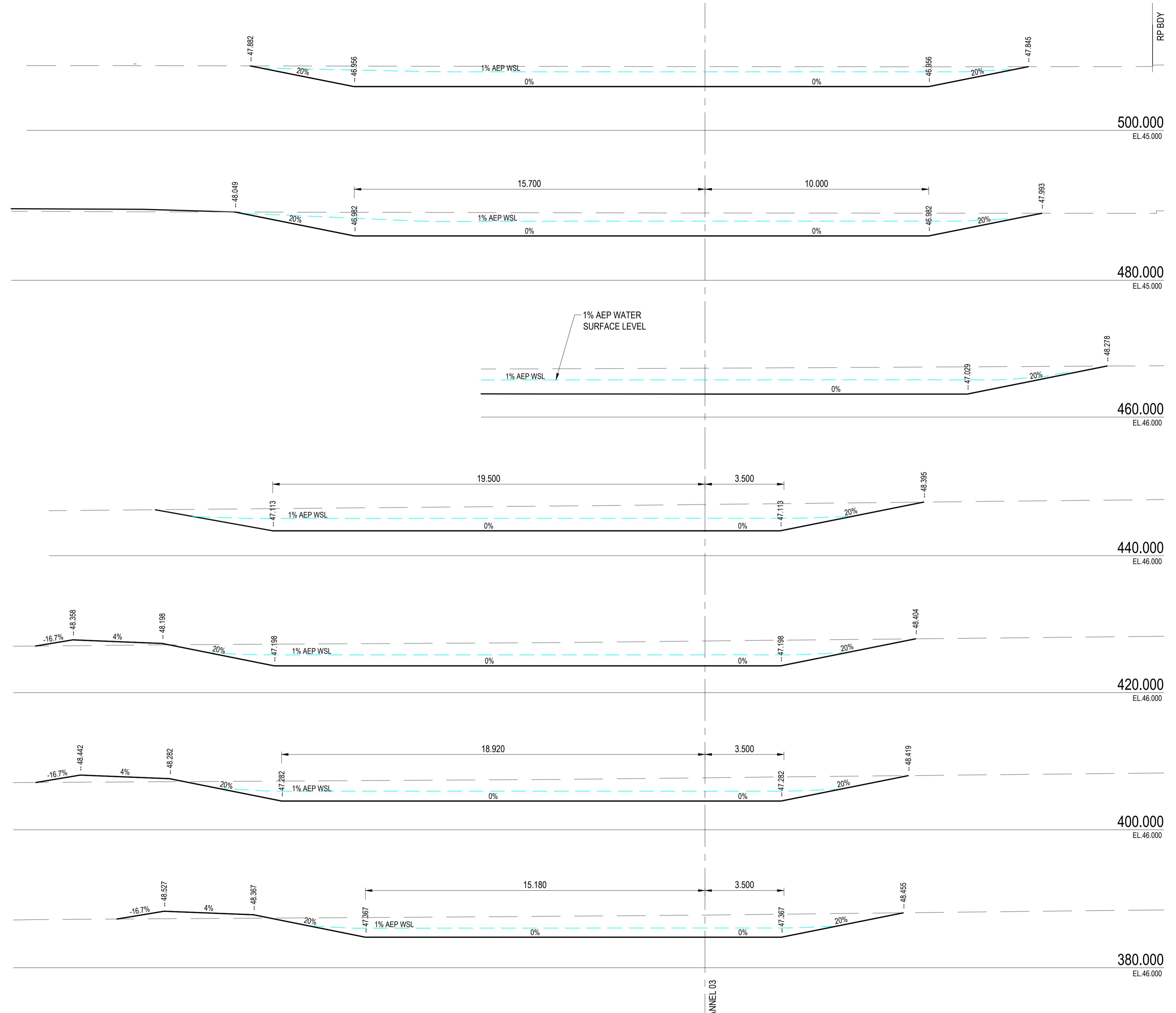
ID 24 24	<p>CERTIFICATION</p> <p><i>Badongtree</i></p> <p>BRET RPEQ</p>
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MT MARGARET ESTATE STAGE 12 - OPERATIONAL WORKS

APPROVAL ISSUE

6TH DECEMBER, 2024

6TH DECEMBER, 2024



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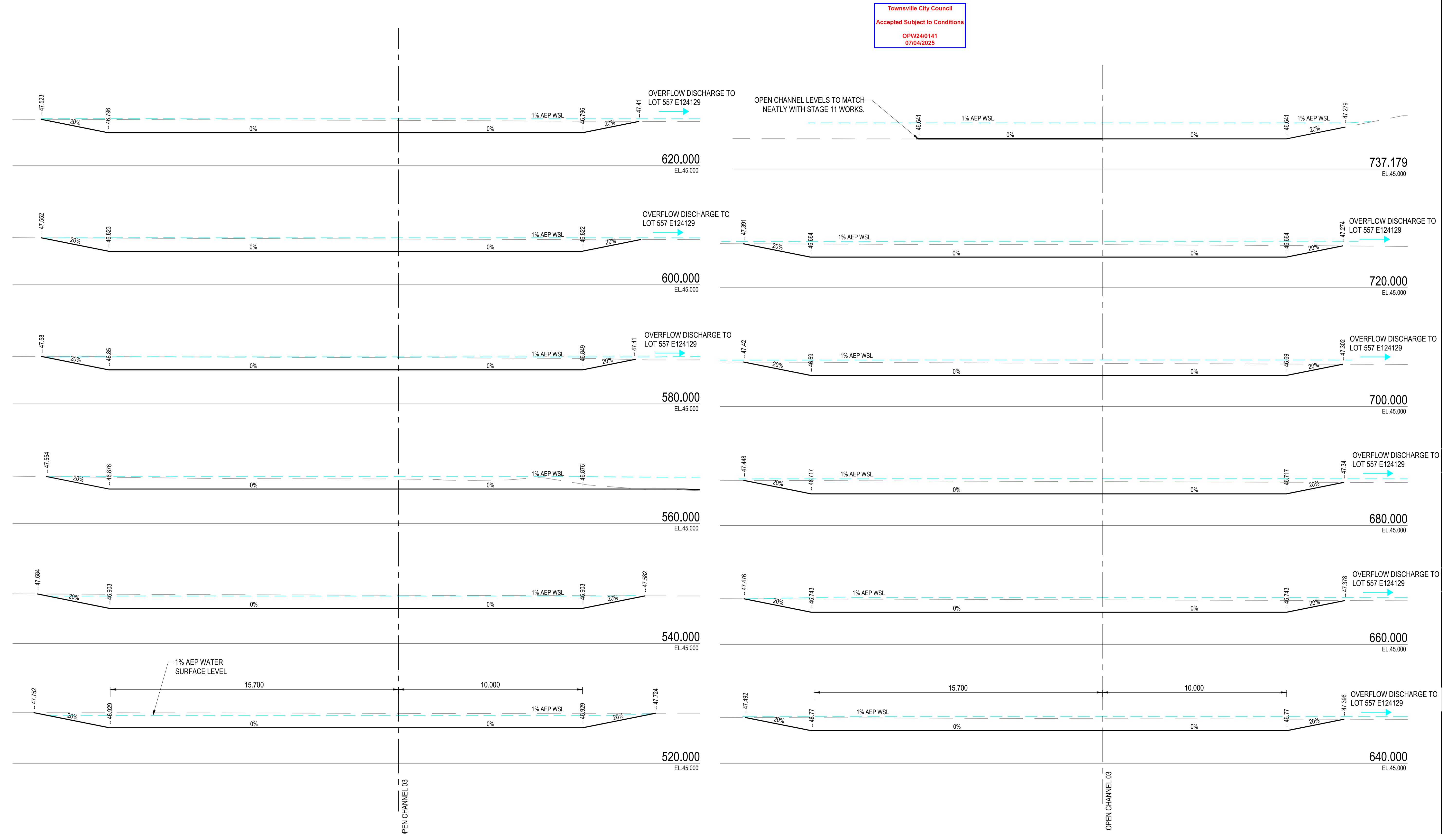
DRAINAGE CROSS SECTIONS OPEN CHANNEL '03' (CONT.)
SCALE 1:100

2 0 2 4 6 8 10m
SCALE 1:100 @ A1
SCALE 1:200 @ A3

APPROVAL ISSUE

6TH DECEMBER, 2024

REVISIONS	HORIZ. DATUM			MT MARGARET GRID		CERTIFICATION <i>Brett Langtree</i>	BRETT LANGTREE RPEQ NO. 11932	OPEN CHANNEL SECTIONS SHEET 2	MT MARGARET ESTATE STAGE 12 - OPERATIONAL WORKS NICKEL STREET ALICE RIVER, QLD, 4817, OPEN CHANNEL SECTIONS SHEET 2	SCALE 1:100 17 OF 28 A
	VERT. DATUM		AHD	DRG. FILE	0944	DATE				
A	B.L.	06.12.24	APPROVAL ISSUE	DESIGN	B.L.	NOV '24				
No.	BY	DATE	DESCRIPTION	DRAWN	C.B.P.	NOV '24				



DRAINAGE CROSS SECTIONS OPEN CHANNEL '03' (CONT.)
SCALE 1:100

2 0 2 4 6 8 10m
SCALE 1:100 @ A1
SCALE 1:200 @ A3

APPROVAL ISSUE

6TH DECEMBER, 2024

REVISIONS	HORIZ. DATUM			MT MARGARET GRID		CERTIFICATION  BRETT LANGTREE RPEQ NO. 11932	
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	A	B.L.	06.12.24	APPROVAL ISSUE			
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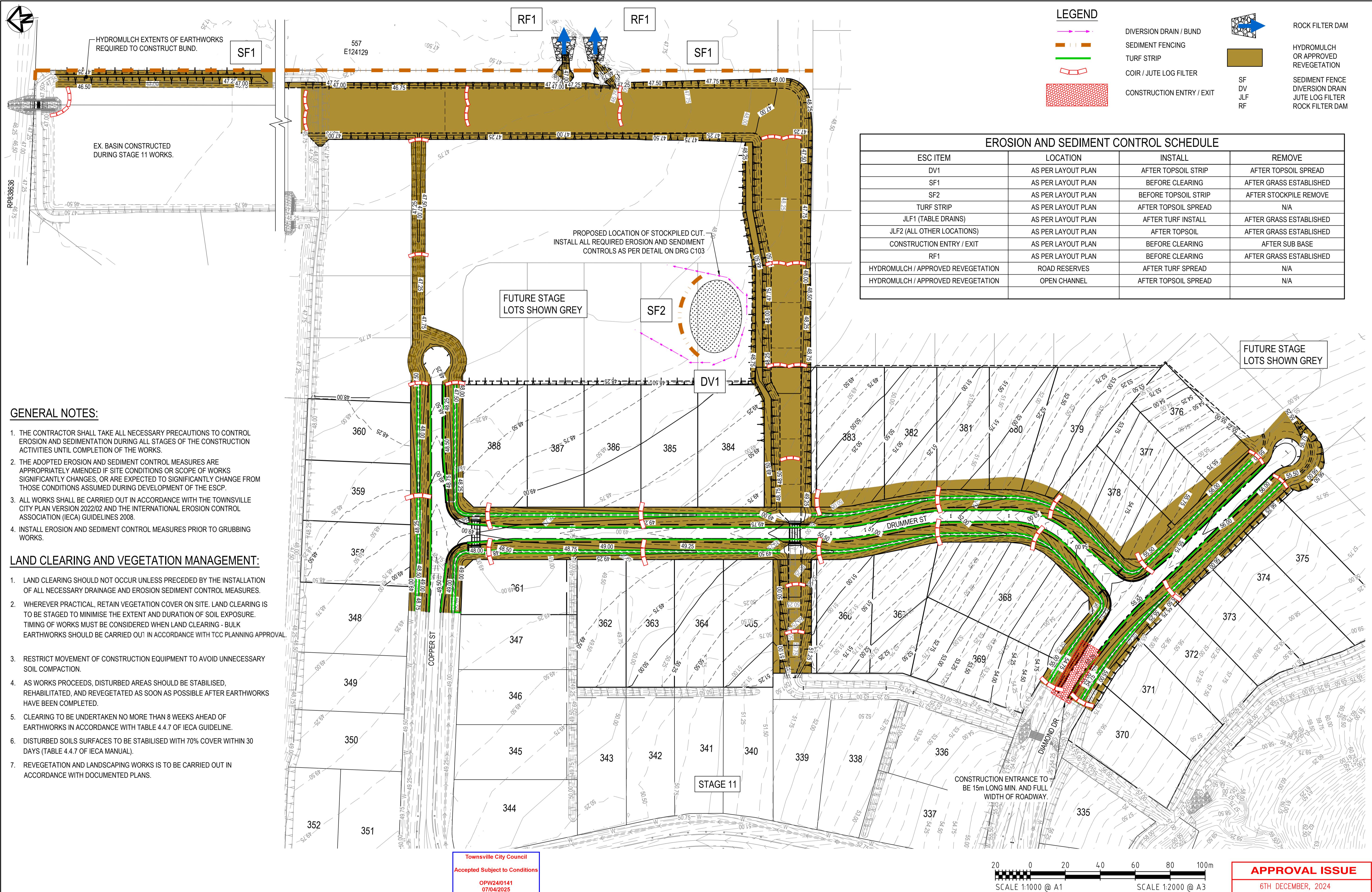
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MT MARGARET ESTATE STAGE 12 - OPERATIONAL WORKS

NICKEL STREET
ALICE RIVER, QLD, 4817,
OPEN CHANNEL SECTIONS SHEET 3

SCALE	1:100
SHEET	18 OF 28
REVISION	A
DRG No.	0944 - C087



REVISIONS	C	B.L.	12.03.25	HORIZ. DATUM			MT MARGARET GRID		CERTIFICATION <i>Brett Langtree</i>	BRETT LANGTREE RPEQ NO. 11932	SCALE	1:1000	
				VERT. DATUM	AHD		DRG. FILE	0944			SCALE	19 OF 28	
	B	B.L.	06.12.24	APPROVAL ISSUE			DESIGN	B.L.	NOV '24	COPYRIGHT <i>C</i>			
	A	B.L.	18.11.24	PRELIMINARY ISSUE			DRAWN	C.B.P.	NOV '24	These designs and drawings are copyright and are not to be used or reproduced without the written permission of LANGTREE CONSULTING PTY LTD (ACN 29 611 368 024). The contents of this drawing are electronically generated, are confidential and may only be used for the purpose for which they were intended. This is an uncontrolled document issued for the sole purpose only of the project for which it was prepared and approved. Figure dimensions take precedence over scale. Do not scale from this drawing.			
	No.	BY	DATE	DESCRIPTION						m e	0400 699 979 brett@langtreeconsulting.com.au	EROSION AND SEDIMENT CONTROL LAYOUT PLAN	

SEDIMENT FENCE

MATERIALS

1. FABRIC: POLYPROPYLENE, POLYAMIDE, NYLON, POLYESTER OR POLYETHYLENE WOVEN OR NON-WOVEN FABRIC, AT LEAST 700MM IN WIDTH AND A MINIMUM UNIT WEIGHT OF 140GSM.
2. SUPPORT POSTS/STAKES AND STEEL STAR PICKETS SUITABLE FOR ATTACHING FABRIC.

INSTALLATION

1. WHERE POSSIBLE INSTALL SEDIMENT FENCE AT LEAST 2M FROM THE TOE OF ANY FILLING OPERATIONS THAT MAY RESULT IN SHIFTING SOIL/FILL DAMAGING THE FENCE.
2. ENSURE THE EXTREME ENDS OF THE FENCE ARE TURNED UP THE SLOPE AT LEAST 1.5M OR AS NECESSARY TO MINIMISE WATER BYPASSING AROUND THE FENCE.
3. ENSURE THE SEDIMENT FENCE IS INSTALLED IN A MANNER THAT AVOIDS THE CONCENTRATION OF FLOW ALONG THE FENCE AND THE UNDESIRABLE DISCHARGE OF WATER AROUND THE ENDS OF THE FENCE.
4. IF THE SEDIMENT FENCE IS TO BE INSTALLED ALONG THE EDGE OF THE EXISTING TREES, ENSURE CARE IS TAKEN TO PROTECT THE TREES AND THEIR ROOT SYSTEMS DURING INSTALLATION OF THE FENCE.
5. UNLESS DIRECTED BY THE SITE SUPERVISOR OR THE APPROVED PLANS, EXCAVATE A 200MM WIDE BY 200MM DEEP TRENCH ALONG THE PROPOSED FENCE LINE, PLACING THE EXCAVATED MATERIAL ON THE UP-SLOPE SIDE OF THE TRENCH.
6. ALONG THE LOWER SIDE OF THE TRENCH, APPROPRIATELY SECURE THE STAKES INTO THE GROUND SPACED NO GREATER THAN 3M IF SUPPORTED BY A TOP SUPPORT WIRE OR WEIR MESH BACKING, OTHERWISE NO GREATER THAN 2M.
7. WHEREVER POSSIBLE, CONSTRUCT THE SEDIMENT FENCE FROM A CONTINUOUS ROLL OF FABRIC. TO JOIN FABRIC ATTACH EACH END OF TWO OVERLAPPING STAKES WITH THE FABRIC FOLDING AROUND THE ASSOCIATED STAKE ONE TURN AND WITH TWO STAKES TIED TOGETHER WITH THE WIRE METHOD OR OVERLAP THE FABRIC TO THE NEXT ADJACENT SUPPORT POST.
8. SECURELY ATTACH THE FABRIC TO THE SUPPORT POSTS USING 25 X 12.5MM STAPLES, OR TIE WIRE AT MAXIMUM 150MM SPACING.
9. SECURELY ATTACH THE FABRIC TO THE SUPPORT WIRE/MESH (IF ANY) AT A MAXIMUM SPACING OF 1M.
10. ENSURE THE COMPLETED SEDIMENT FENCE IS AT LEAST 450MM, BUT NOT MORE THAN 700MM HIGH. IF A SPILL THROUGH WEIR IS INSTALLED, ENSURE THE CREST OF THE WEIR IS AT LEAST 300MM ABOVE GROUND LEVEL.
11. BACKFILL THE TRENCH AND TAMP THE FILL TO FIRMLY ANCHOR THE BOTTOM OF THE FABRIC AND MESH TO PREVENT WATER FROM FLOWING UNDER THE FENCE.
12. IF IT IS NOT POSSIBLE TO ANCHOR THE FABRIC IN AN EXCAVATED TRENCH, THEN USE A CONTINUOUS LAYER OF SAND OR AGGREGATE TO HOLD THE FABRIC FIRMLY ON THE GROUND.

MAINTENANCE

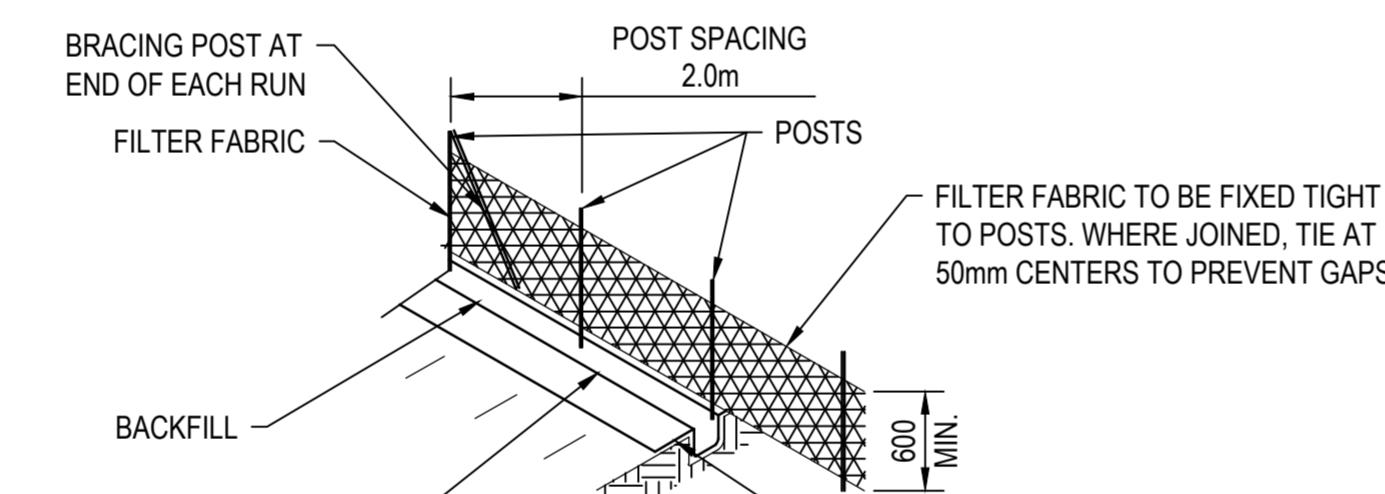
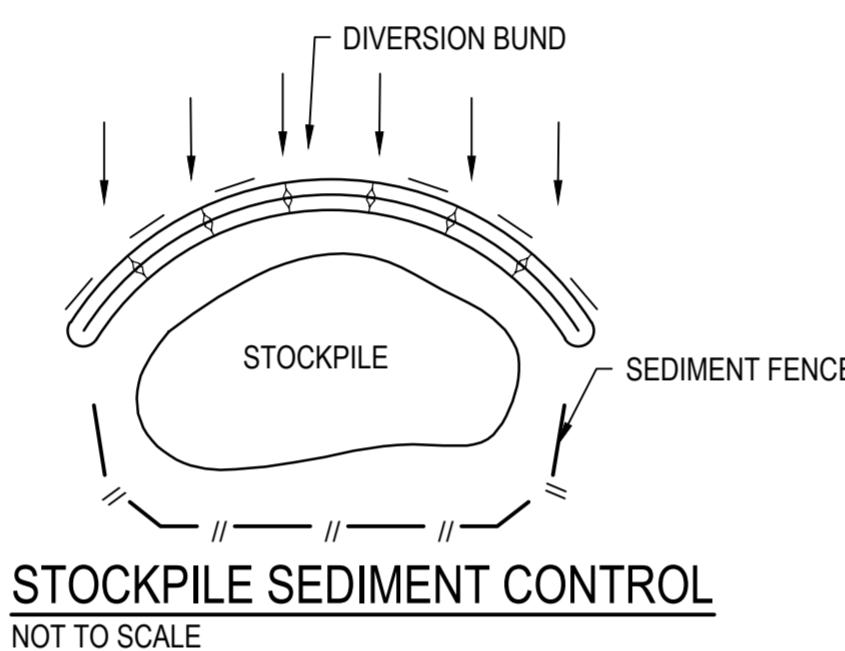
1. INSPECT THE SEDIMENT FENCE AT LEAST WEEKLY AND AFTER ANY SIGNIFICANT RAIN. MAKE NECESSARY REPAIRS IMMEDIATELY.
2. REPAIR ANY TORN SECTIONS WITH A CONTINUOUS PIECE OF FABRIC FROM POST TO POST.
3. WHEN MAKING REPAIRS, ALWAYS RESTORE THE SYSTEM TO ITS ORIGINAL CONFIGURATION UNLESS AN AMENDED LAYOUT IS REQUIRED OR SPECIFIED.
4. IF THE FENCE IS SAGGING BETWEEN STAKES, INSTALL ADDITIONAL SUPPORT POSTS.
5. REMOVE ACCUMULATED SEDIMENT IF THE SEDIMENT DEPOSIT EXCEEDS A DEPTH OF 1/3 THE HEIGHT OF THE FENCE.
6. DISPOSE OF SEDIMENT IN A SUITABLE MANNER THAT WILL NOT CAUSE AN EROSION OR POLLUTION HAZARD

MATERIAL STOCKPILING:

THE CONSTRUCTION CONTRACTOR IS TO ADHERE TO THE FOLLOWING SOIL AND STOCKPILE MANAGEMENT PRACTICES. IN ADDITION, AS THE SITE IS WITHIN THE FIRE ANT BIOSECURITY ZONE 1, RECOMMENDATIONS FOR ADEQUATE STOCKPILING IN ACCORDANCE WITH THE BIOSECURITY ACT 2014 ARE ALSO PROVIDED BELOW. STOCKPILES OF ERODIBLE MATERIAL THAT HAS THE POTENTIAL TO CAUSE ENVIRONMENTAL HARM IF DISPLACED MUST BE:

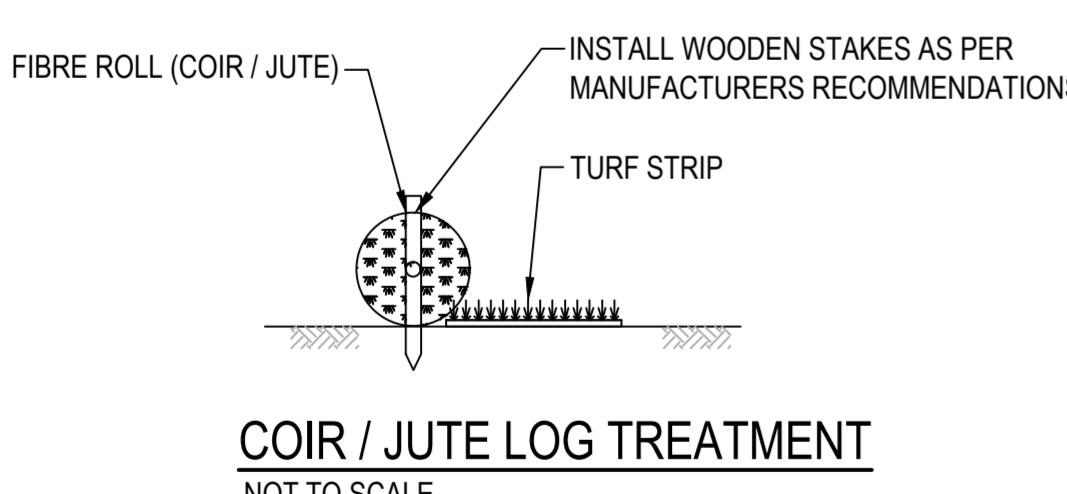
1. APPROPRIATELY PROTECTED FROM WIND, RAIN, CONCENTRATED SURFACE FLOW AND EXCESSIVE UP-SLOPE STORMWATER SURFACE FLOWS;
2. LOCATED AT LEAST 2m FROM ANY HAZARDOUS AREA, RETAINED VEGETATION, OR CONCENTRATED DRAINAGE LINE;
3. LOCATED UP-SLOPE OF AN APPROPRIATE SEDIMENT CONTROL SYSTEM;
4. PROVIDED WITH AN APPROPRIATE PROTECTIVE COVER (SYNTHETIC, MULCH OR VEGETATIVE) IF THE MATERIALS ARE LIKELY TO BE STOCKPILED FOR MORE THAN 28 DAYS.
5. PROVIDED WITH AN APPROPRIATE PROTECTIVE COVER (SYNTHETIC, MULCH OR VEGETATIVE) IF THE MATERIALS ARE LIKELY TO BE STOCKPILED FOR MORE THAN 10 DAYS DURING THOSE MONTHS THAT HAVE A HIGH EROSION RISK;
6. PROVIDED WITH AN APPROPRIATE PROTECTIVE COVER (SYNTHETIC, MULCH OR VEGETATIVE) IF THE MATERIALS ARE LIKELY TO BE STOCKPILED FOR MORE THAN 5 DAYS DURING THOSE MONTHS THAT HAVE A HIGH EROSION RISK;
7. A SUITABLE FLOW DIVERSION SYSTEM MUST BE ESTABLISHED IMMEDIATELY UP-SLOPE OF A STOCKPILE OF ERODIBLE MATERIAL THAT HAS THE POTENTIAL TO CAUSE ENVIRONMENTAL HARM IF DISPLACED, IF THE UP-SLOPE CATCHMENT AREA DRAINING TO THE STOCKPILE EXCEEDS 1500m².

Townsville City Council
Accepted Subject to Conditions
OPW24/0141
07/04/2025



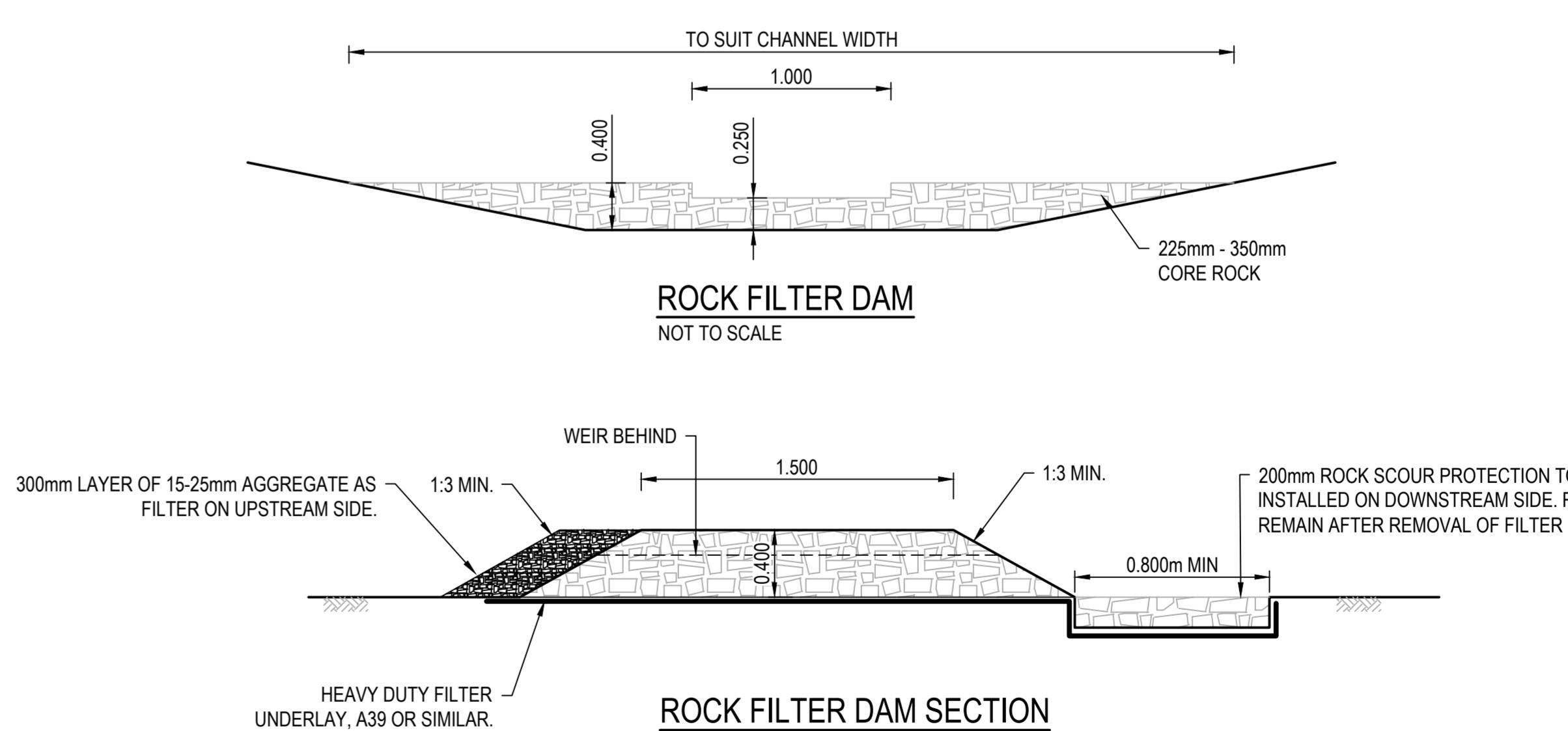
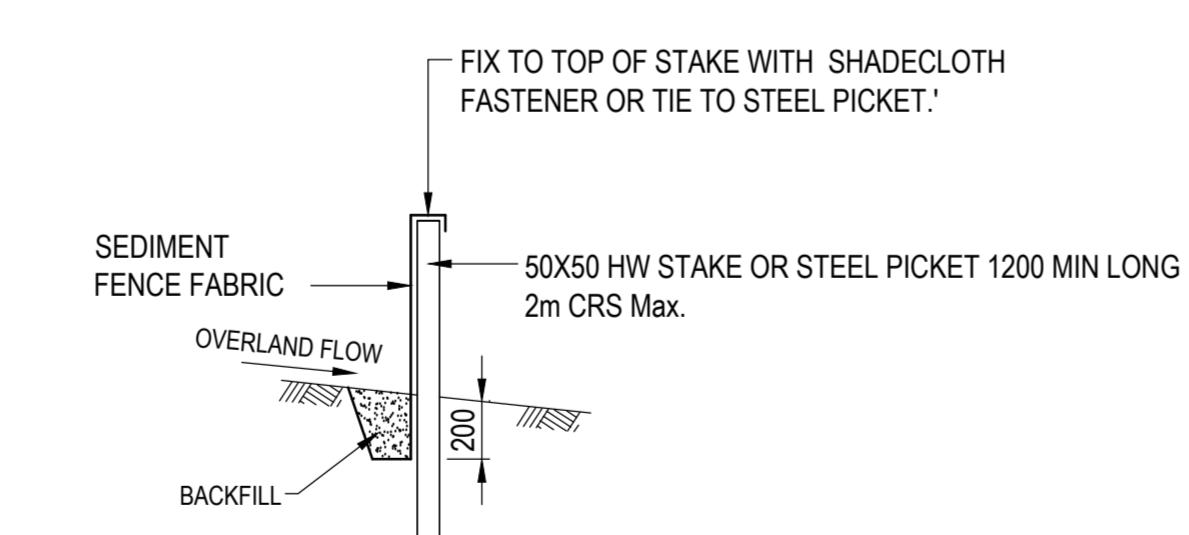
TYPICAL INSTALLATION OF A SEDIMENT FENCE

NOT TO SCALE



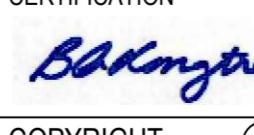
SEDIMENT FENCE SECTION

NOT TO SCALE



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6TH DECEMBER, 2024

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GENERAL NOTES:

GENERAL:

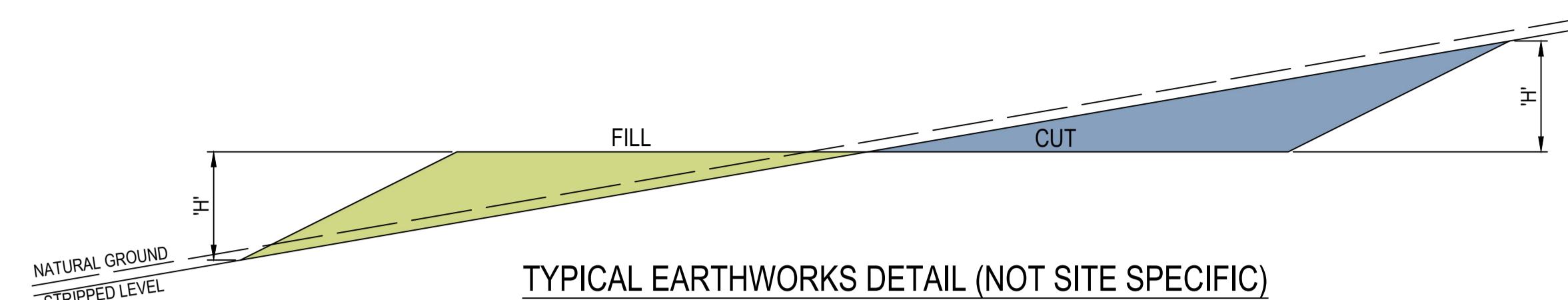
- ALL WORKS AND MATERIALS MUST BE IN ACCORDANCE WITH CURRENT TCC SPECIFICATIONS, STANDARD DRAWINGS, LOCAL AUTHORITY POLICIES AND AUSTRALIAN STANDARDS, UNLESS OTHERWISE NOTED.
- THE CONTRACTOR MUST TAKE ALL NECESSARY MEASURES TO PROTECT NEARBY PROPERTY OWNERS FROM DUST POLLUTION DURING ALL PHASES OF WORKS. FINISHED AREAS OF EARTHWORKS MUST BE KEPT WATERED WHERE NECESSARY UNTIL A SATISFACTORY GRASS COVER IS ACHIEVED.
- ALL CONSTRUCTION WORKS ARE TO BE JOINED NEATLY TO EXISTING SURFACE.
- PUBLIC UTILITIES - DESPITE THE POSITION OF PUBLIC UTILITIES, FITTINGS, PIPES, POLES, MANHOLES, ETC MAY BE INDICATED ON THE DRAWINGS, NO RESPONSIBILITY WILL BE ACCEPTED BY THE PRINCIPAL FOR THE ACCURACY OF THE REPRESENTATION OR THE OMISSION THEREOF.
- LOCATION AND LEVEL OF EXISTING SERVICES AND STRUCTURES HAS BEEN PLOTTED FROM AVAILABLE RECORDS AND IS TO BE CONSIDERED INDICATIVE ONLY. THE CONTRACTOR MUST ACCURATELY LOCATE THESE ON SITE PRIOR TO COMMENCING WORKS AND MUST PROTECT ALL EXISTING SERVICES DURING CONSTRUCTION. ANY DAMAGE TO EXISTING SERVICES MUST BE REPAIRED AT THE CONTRACTORS EXPENSE.
- VEGETATION OUTSIDE WORK AREAS MUST NOT BE DISTURBED UNLESS SPECIFICALLY AUTHORISED BY THE SUPERINTENDENT.
- IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO COMPLY WITH ALL RELEVANT LEGISLATION.
- IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO MAINTAIN THE STABILITY OF ANY TEMPORARY WORKS ON THE SITE.
- THE CONTRACTOR MUST CONFIRM THE ACCURACY OF ALL SETOUT AND CONFIRM ALL LEVELS WITH THE SUPERINTENDENT PRIOR TO COMMENCING CONSTRUCTION.
- THE SURVEY LEVEL DATUM IS AHD AND THE CO-ORDINATE DATUM IS LOCAL AS PROVIDED BY ROWLANDS SURVEYS.
- THESE DRAWINGS ARE TO BE READ IN CONJUNCTION WITH TMR SPECIFICATIONS AND THE PROJECT SPECIFICATIONS. IN THE EVENT OF A DISCREPANCY, REFER TO THE SUPERINTENDENT FOR CLARIFICATION.
- THESE DRAWINGS MUST BE READ IN CONJUNCTION WITH DRAWINGS PREPARED BY OTHER RELATED CONSULTANTS, ALL PROJECT SPECIFICATIONS AND WITH SUCH OTHER WRITTEN INSTRUCTIONS AS MAY BE ISSUED DURING THE COURSE OF THE WORK. ALL THE DISCREPANCIES MUST BE REFERRED TO THE SUPERINTENDENT FOR DECISION BEFORE PROCEEDING WITH THE WORK.
- ALL DIMENSIONS RELEVANT TO SETTING OUT AND OFF-SITE WORK MUST BE AS INDICATED ON THESE DRAWINGS AND MUST BE VERIFIED BY THE CONTRACTOR BEFORE CONSTRUCTION AND/OR FABRICATION IS COMMENCED. THE ENGINEERS DRAWINGS MUST NOT BE SCALED, UNLESS SPECIFICALLY NOTED OTHERWISE.
- DURING CONSTRUCTION THE CONTRACTOR MUST BE RESPONSIBLE FOR MAINTAINING PROPOSED AND EXISTING WORKS IN A STABLE CONDITION AND ENSURING NO PART MUST BE OVER STRESSED UNDER CONSTRUCTION ACTIVITIES.
- SAFETY REQUIREMENTS MUST BE IN ACCORDANCE WITH THE REQUIREMENTS OF THE WORK PLACE, HEALTH AND SAFETY ACT.
- THE APPROVAL FOR A SUBSTITUTION MAY BE SOUGHT FROM THE SUPERINTENDENT BUT IS NOT AN AUTHORISATION FOR A VARIATION. ANY VARIATION MUST BE APPROVED BY THE SUPERINTENDENT BEFORE WORK COMMENCES.
- THE ACCESS FOR THE WORK SITE MUST BE AS INDICATED ON THE CONTRACT OR AS APPROVED BY THE SUPERINTENDENT AND THE LOCAL AUTHORITIES. THE CONTRACTOR MUST OBTAIN ALL NECESSARY AND RELEVANT PERMITS. IT IS THE CONTRACTORS RESPONSIBILITY TO CONSTRUCT AND MAINTAIN ACCESS AS REQUIRED TO ALL PARTS OF CONTRACTORS WORK AREA.
- THE CONTRACTORS COMPOUND MUST BE LOCATED AS APPROVED BY SUPERINTENDENT.
- ANY WORKS WITHIN A STATE CONTROLLED ROAD RESERVE MUST BE CARRIED OUT IN ACCORDANCE WITH DTM CURRENT SPECIFICATIONS AND STANDARD DRAWINGS.
- CONTRACTOR MUST UNDERTAKE ALL WORKS IN PROXIMITY TO EXISTING SERVICES AND INFRASTRUCTURE IN ACCORDANCE WITH THE RELEVANT UTILITY / AUTHORITY POLICIES AND PROCEDURES.

EROSION & SEDIMENT CONTROL:

- FOR STANDARD SEDIMENT CONTROL DEVICE DETAILS REFER TO DRAWINGS PROVIDED FOR THIS PROJECT.
- REFER TO THE EROSION AND SEDIMENT CONTROL PLAN AND IMPLEMENT EROSION CONTROL MEASURES PRIOR TO COMMENCING WORKS ON SITE. MAINTAIN EROSION CONTROL MECHANISMS IN WORKING ORDER DURING ENTIRE CONSTRUCTION.
- SEDIMENT LOSS FROM THE WORK SITE MUST BE MANAGED IN ACCORDANCE WITH CURRENT RELEVANT ENVIRONMENTAL GUIDELINES LEGISLATION. THIS WILL NECESSITATE THE USE OF APPROPRIATE EROSION AND SEDIMENT CONTROLS. THESE MUST BE IMPLEMENTED AT THE SITE ESTABLISHMENT PHASE AND MAINTAINED THROUGHOUT THE CONSTRUCTION PERIOD.
- PRE-DISTURBANCE SOIL PROFILES AND COMPACTION LEVELS MUST BE REINSTATED.
- ALL VEHICLES EXITING FROM THE SITE ARE TO BE WASHED DOWN, CLEANED AND TREATED SO AS TO PREVENT MATERIAL BEING TRACKED OR DEPOSITED ON PUBLIC ROADS. INSTALL MEASURES FOR CONTROL OF WASH DOWN.
- ALL DISTURBED AREAS MUST BE LEFT IN A STABLE CONDITION. REFER TO ROADWORKS AND DRAINAGE LAYOUTS AND TYPICAL SECTIONS AND DETAILS FOR BATTER TREATMENTS.
- ALL VEGETATION WITHIN 4m OF GENERAL MACHINE OPERATION MUST BE PROTECTED WITH A STAR PICKET AND ROPE FENCE CONSTRUCTED AT LEAST 1m CLEAR OF THE VEGETATION.
- EROSION AND SEDIMENT CONTROL IS THE RESPONSIBILITY OF THE CONTRACTOR WHO MUST COMPLY WITH TMR REQUIREMENTS.
- IMPLEMENT WORKS SHOWN ON THE SEDIMENT AND EROSION PLAN.
- PROGRESSIVELY CLEAN UP ALL LITTER AND OIL LEAKS, AND PREVENT WASH OFF OF CEMENT SLURRY AND AC PRIME.
- SUITABLE DUST CONTROL MEASURES TO BE IMPLEMENTED AT ALL TIMES.
- THE CONTRACTOR MUST ADVISE THE SUPERINTENDENT ONCE THE EROSION AND SEDIMENT CONTROL MEASURES HAVE BEEN INSTALLED.
- EROSION AND SEDIMENT CONTROL MEASURES MUST REMAIN IN PLACE UNTIL REHABILITATION MEASURES HAVE ESTABLISHED.

EARTHWORKS:

- ALL EARTHWORKS OPERATION SHALL BE CARRIED OUT IN ACCORDANCE WITH TOWNSVILLE CITY PLAN SCHEDULE 6.4.6.10 EARTHWORKS (CONSTRUCTION) AND SCHEDULE 6.4.6.11 CLEARING AND GRUBBING UNLESS NOTED OTHERWISE.
- PRIOR TO COMMENCEMENT OF CLEARING OPERATIONS THE LIMITS OF CLEARING ARE TO BE CLEARLY ESTABLISHED AND MARKED. CLEARING OUTSIDE WORK AREAS MUST BE APPROVED BY THE SUPERINTENDENT. ALL TREES IDENTIFIED AS "TO BE RETAINED" ON THE PROJECT DRAWINGS (IF ANY) SHALL BE PROTECTED FROM DAMAGE AND CLEARLY MARKED WITH AN EASILY VISIBLE NON-INJURIOUS AND REMOVABLE MEANS OF IDENTIFICATION.
- PRIOR TO THE COMMENCEMENT OF EARTHWORKS, ALL AREAS SUBJECT TO EARTHWORKS OPERATIONS SHALL BE CLEARED AND GRUBBED.
- ALL CONCRETE SLABS, DRAINS AND OTHER STRUCTURES, SERVICES OR DEBRIS ARE TO BE REMOVED FROM SITE AS NECESSARY TO PROPERLY CONSTRUCT THE WORKS. EXCAVATIONS AS A RESULT OF DEBRIS REMOVAL SHALL BE BACKFILLED AND COMPACTED TO THE STANDARD APPROPRIATE FOR THE RELEVANT LOCATION OF THE WORKS.
- ANY AREA AFFECTED BY EARTHWORKS SHALL BE STRIPPED OF ALL TOPSOIL AND ANY OTHER ORGANIC MATTER IN STOCKPILE FOR RE-SPREADING AS REQUIRED.
- THE CONTRACTOR SHALL NOTIFY THE SUPERINTENDENT OF THE AVERAGE DEPTHS OF TOPSOIL MATERIAL AND ANY SIGNIFICANT VARIATIONS IN THE DEPTH OF TOPSOIL MATERIAL ENCOUNTERED DURING STRIPPING OPERATIONS.
- TOPSOIL STOCKPILES ARE TO BE PROTECTED FROM SEDIMENT RUNOFF BY A CATCH DRAIN CONSTRUCTED ALONG UPHILL SIDES AND A SUITABLE SILT FENCE/SEDIMENT TRAP CONSTRUCTED ON THE DOWNSHILL SIDES.
- ALL EARTHWORKS SHALL BE COMPACTED TO MINIMUM 98% STANDARD COMPACTION.
- UNSUITABLE MATERIAL WILL BE AS DESCRIBED IN AS3798. THE CONTRACTOR SHALL GAIN THE AGREEMENT OF THE SUPERINTENDENT PRIOR TO CLASSIFYING ANY MATERIAL AS BEING UNSUITABLE.



TYPICAL EARTHWORKS DETAIL (NOT SITE SPECIFIC)

BATTER ANGLES - SHORT TERM

SLOPE = H : L	MATERIAL TYPE (REFER GEOTECHNICAL REPORT)						
	H ≤ 2.0M	STABLE ROCK	SAND	SILT	FIRM CLAY	SOFT CLAY	SOFT SOILS
COMPACTED FILL	1:1	1:3	1:4	1:2	N/A	N/A	
CUTTING	N/A	1:3	1:4	1:2	1:3	N/A	

* N/A - REFER TO GEOTECHNICAL REPORT FOR TREATMENT OF UNSUITABLE MATERIAL
Note: ALL BATTER ANGLES APPROXIMATELY ONLY AND ARE TO BE CONFIRMED BY GEOTECHNICAL ENGINEER

LEVEL 1 COMPACTION

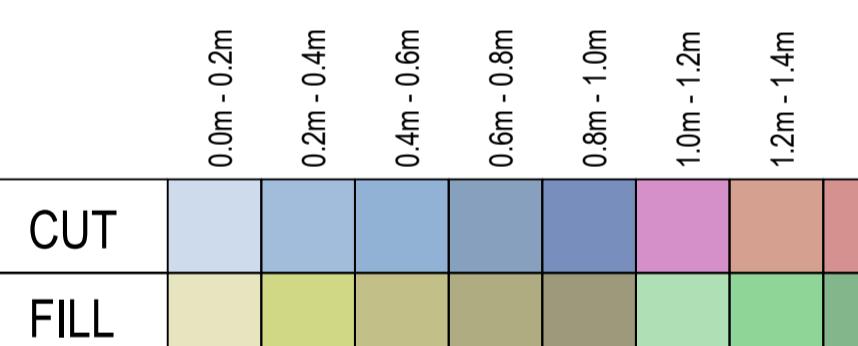
ALL FILLING ON SITE TO BE LEVEL 1 COMPACTED FILL AS PER AS1289 UNLESS NOTED OTHERWISE.

EROSION AND SEDIMENT CONTROL (ESC)
MEASURES TO BE INSTALLED PRIOR TO COMMENCEMENT OF WORK.

EROSION PLANS AND BUILDING
REPRESENTATIVE FAMILIAR WITH THE PLAN
MUST BE ON SITE AT ALL TIMES DURING
CONSTRUCTION

THIS DEVELOPMENT MAY REQUIRE THE
IMPLEMENTATION OF SOIL RETENTION METHODS
DURING CONSTRUCTION. IT IS THE
CONTRACTORS RESPONSIBILITY TO ENSURE
THESE WORKS ARE CERTIFIED BY A SUITABLY
QUALIFIED RPEQ AND INSTALLED PRIOR TO
UNDERTAKEN THE FILLING AND EXCAVATION
WORKS AS INDICATED ON THIS PLAN

ALL ENVIRONMENTAL MEASURES INCLUDING
VEGETATION PROTECTION AND EROSION AND
SEDIMENT CONTROL SHALL BE IN PLACE PRIOR
TO THE COMMENCEMENT OF ANY WORK



EARTHWORKS TABLE

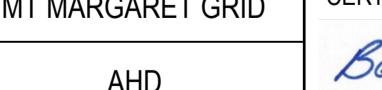
SITE PREPARATION	CUT (m³)	FILL (m³)	NETT (m³)
BULK EARTHWORKS FROM EXISTING SURFACE	-16694.482	16338.535	-355.947

EARTHWORKS VOLUMES ARE TAKEN FROM EXISTING SURFACE LEVEL TO FINISHED SURFACE LEVEL INCLUDING 400mm ROAD BOX.
CONTRACTOR IS TO CONFIRM VOLUMES PRIOR TO TENDER OR COMMENCEMENT OF WORKS ON SITE.
DETAILED EXCAVATION OF TRENCHES / SERVICES / STORMWATER EXCLUDED.

2 0 2 4 6 8 10m
SCALE 1:100 @ A1 SCALE 1:200 @ A3

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MT MARGARET ESTATE STAGE 12 - OPERATIONAL WORKS

NICKEL STREET

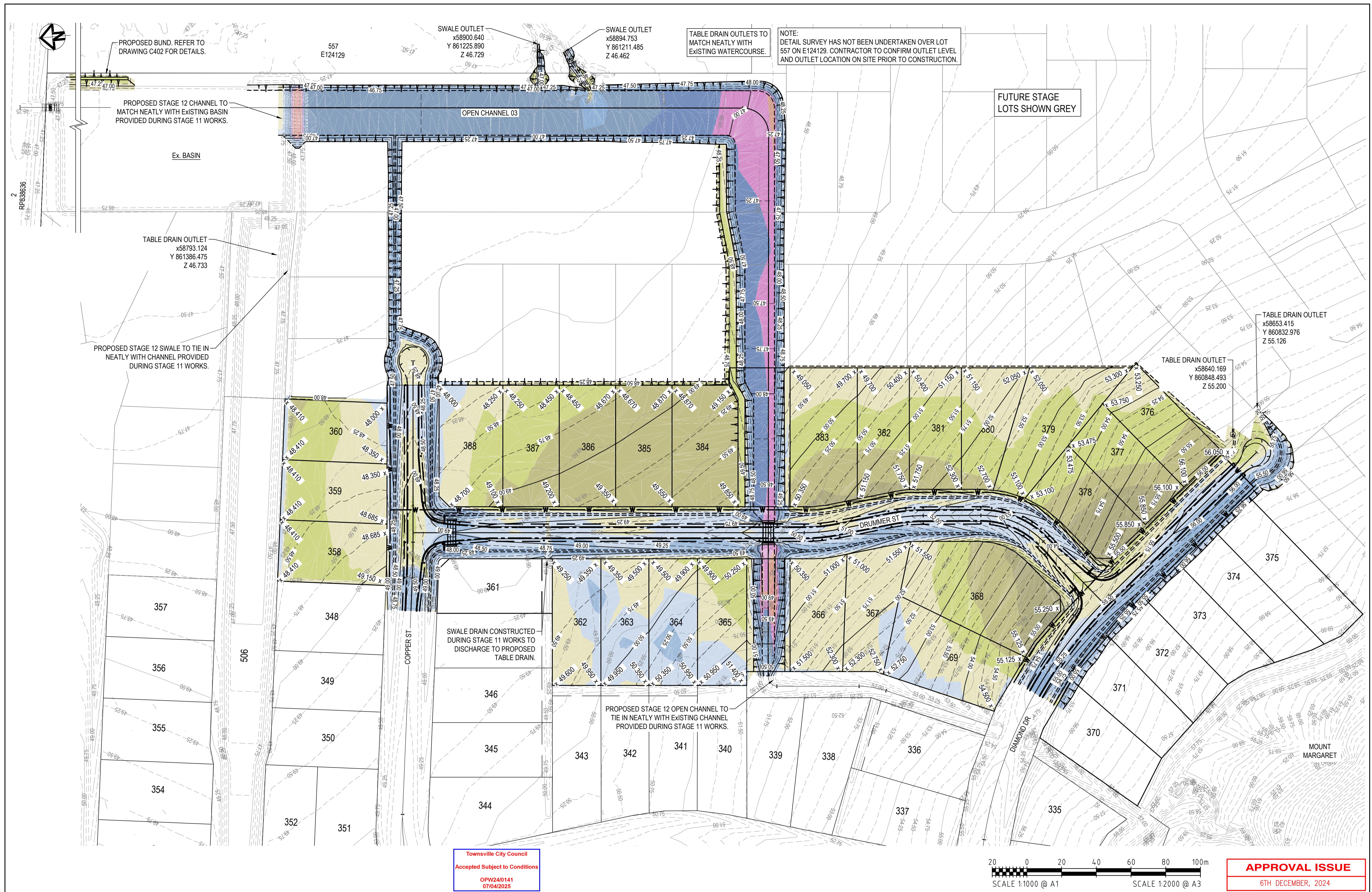
ALICE RIVER, QLD, 4817

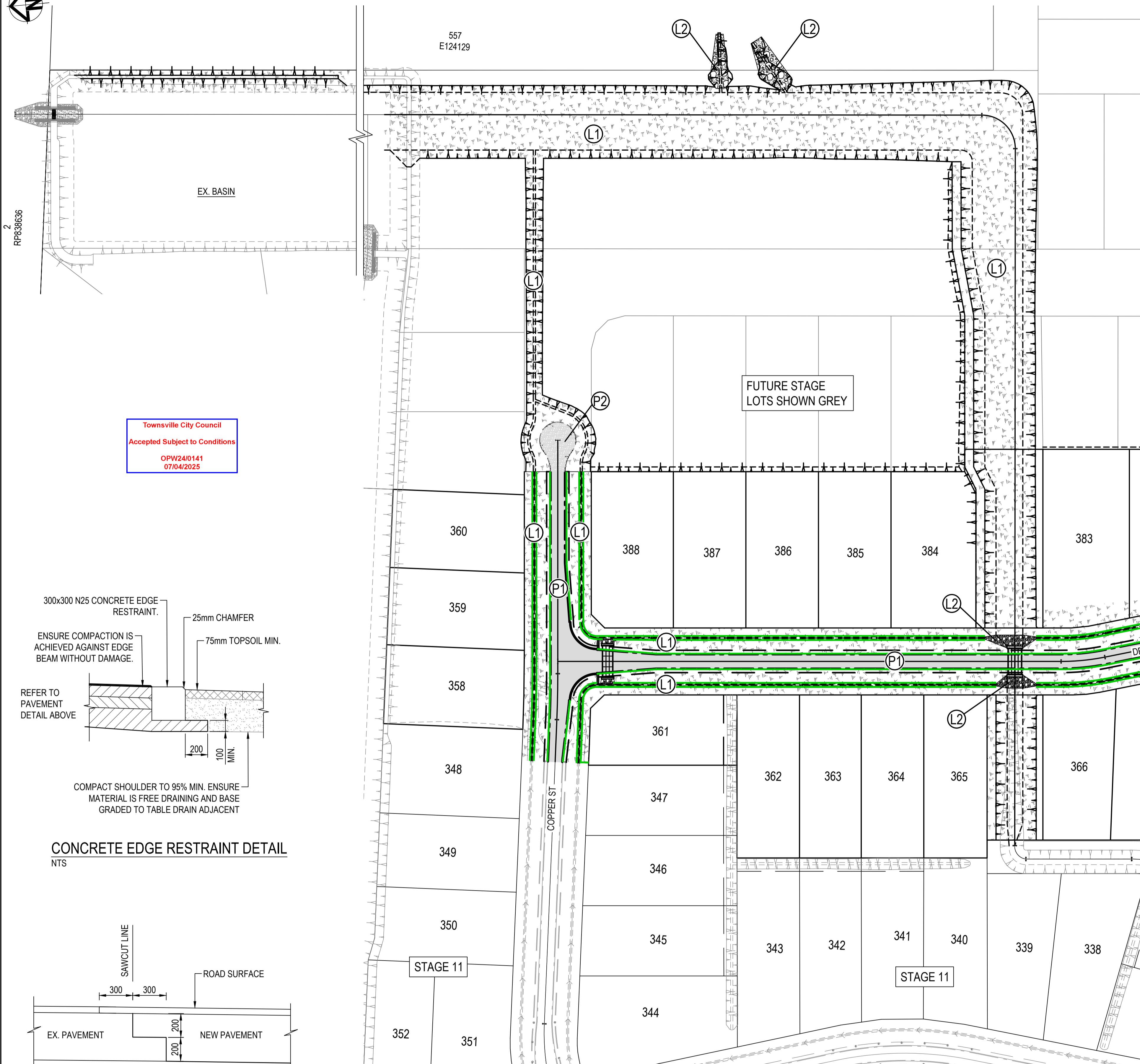
BULK EARTHWORKS NOTES, DETAIL AND LEGEND

N/A
22 OF 28

A B

0944 - C201





* PAVEMENT DEPTH SHOWN IS PRELIMINARY ONLY AND BASED ON A SUBGRADE OF CBR 3% PAVEMENT DESIGN AND MATERIAL IS TO BE CONFIRMED BY LANGTREE CONSULTING FOLLOWING GEOTECHNICAL TESTING OF SUBGRADE.

PAVEMENT NOTES

1. THE PROPOSED WORK SHOULD BE CUT IN TO EXPOSE THE EDGE OF THE EXISTING PAVEMENT AND NOT SIMPLY BUTTED AGAINST THE EDGE OF THE EXISTING SURFACE. REFER DETAIL

SURFACE TREATMENT LEGEND:

	PAVEMENT 1 * PRIME AMC00 @ 0.8L/m ² SEAL 1 ST COAT CL170 @ 1.5L/m ² & 14mm @ 95m ² /m ³ 2 ND COAT CL170 @ 1.1L/m ² & 7mm @ 120m ² /m ³ 150mm TYPE 2.1 BASE 125mm TYPE 2.3 SUB BASE 125mm TYPE 2.5 LOWER SUB BASE TOTAL PAVEMENT DEPTH = 400mm
	PAVEMENT 2 150mm TYPE 2.3 SUB BASE
	AREA TO BE HYDROMULCHED OR APPROVED REVEGETATION
	ROCK PROTECTION D ₅₀ =200mm ROCK ON A39 BIDIM, 400mm DEEP
	TURF STRIP

20 0 20 40 60 80 100m
SCALE 1:1000 @ A1
SCALE 1:2000 @ A3

APPROVAL ISSUE

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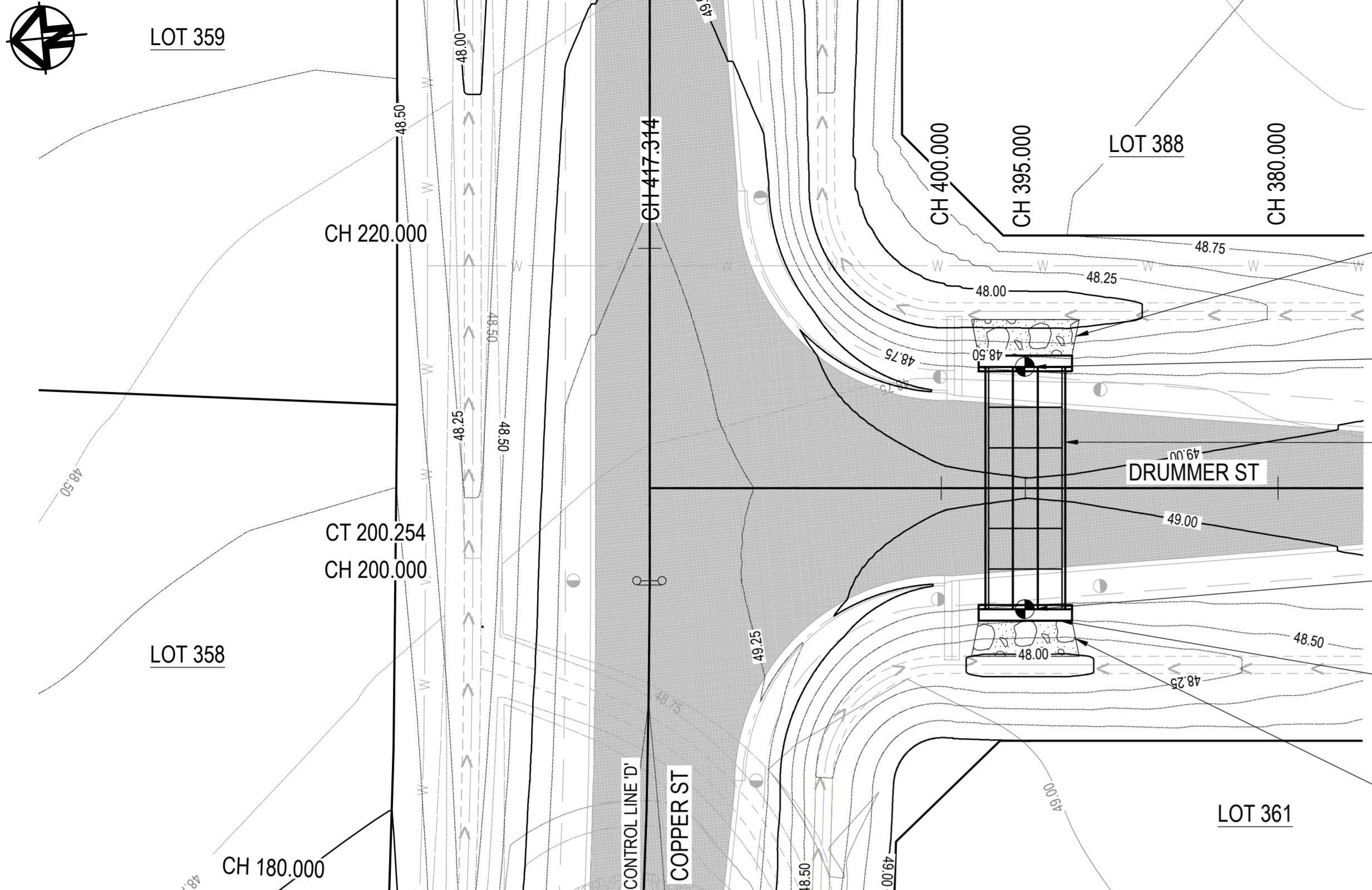
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ALICE RIVER, QLD, 4817 ,

SURFACE TREATMENT LAYOUT PLAN

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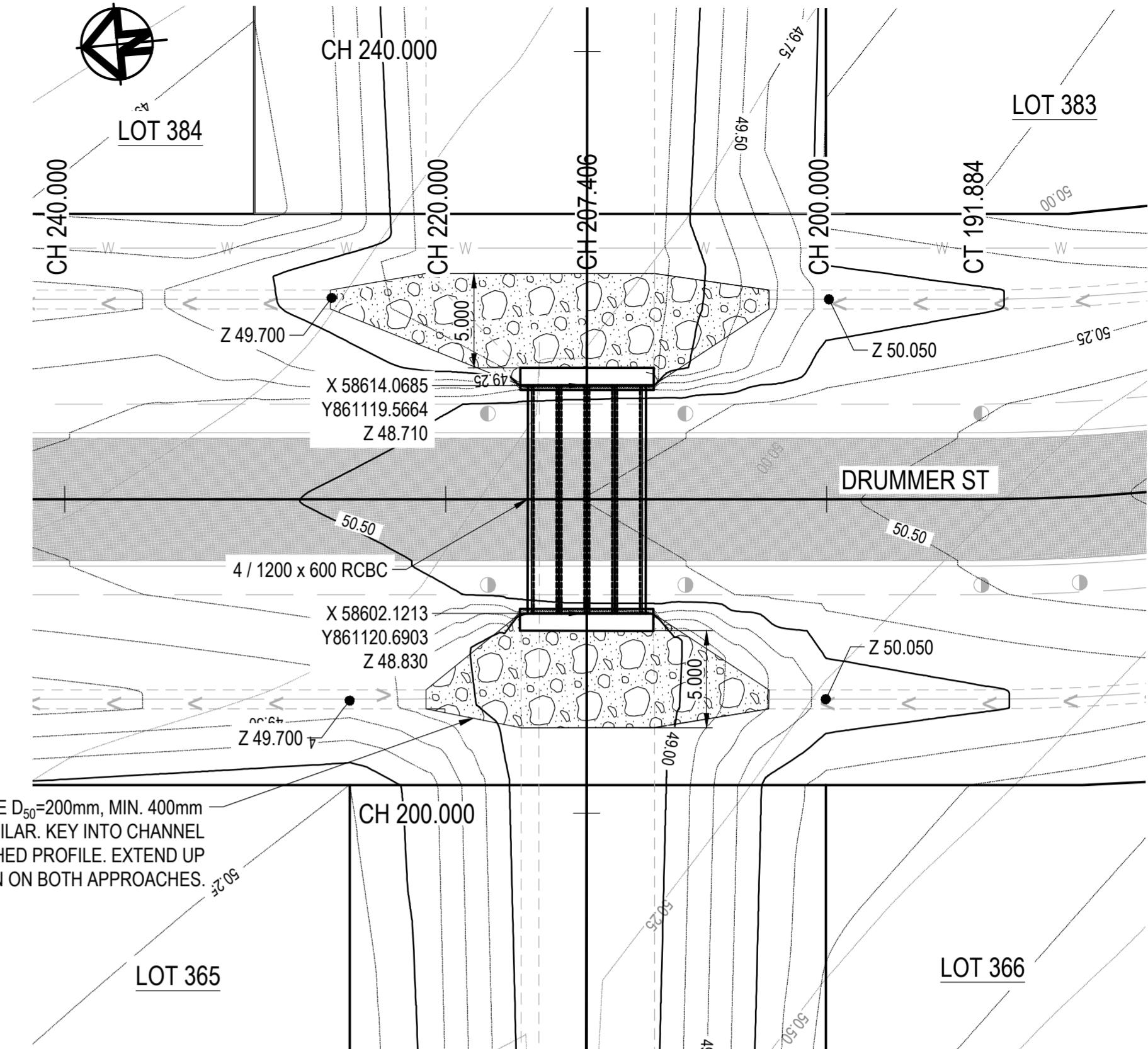
CULVERT 02 LAYOUT - INTERSECTION OF COPPER ST AND DRUMMER ST
SCALE 1:250

WORKING PLATFORM SUBGRADE NOTES:

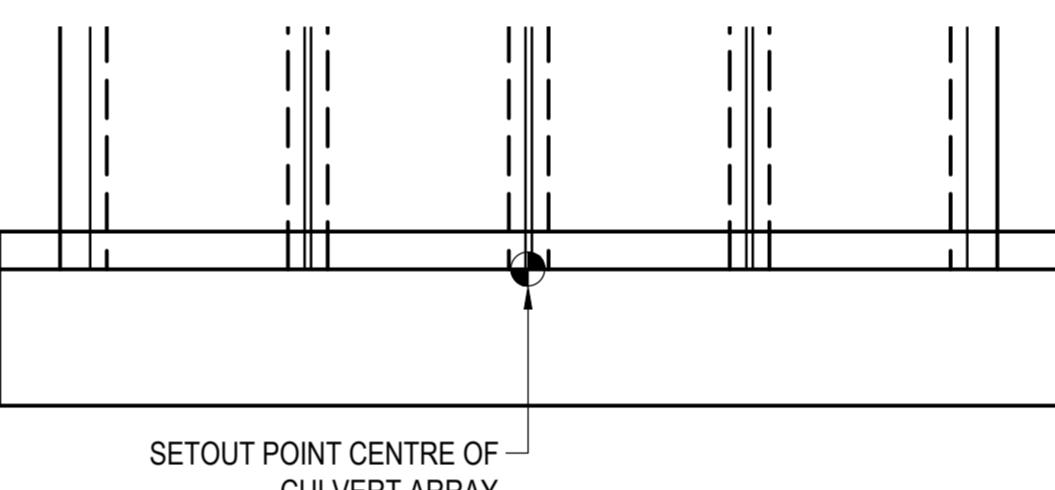
1. SUBGRADE TO BE INSPECTED AND TESTED.
2. THE BEARING CAPACITY IS TO BE CONFIRMED AND PROVIDED TO THE SUPERINTENDENT. THE MINIMUM ALLOWABLE BEARING CAPACITY OF THE SUBGRADE IS TO BE 100kPa.
3. IF DIRECTED, THE SUBGRADE SHALL BE TREATED TO ACHIEVE THE MINIMUM REQUIRED BEARING CAPACITY BY PUSHING ROCK SPALLS OF 150mm (NOMINAL DIAMETER) INTO THE SUBGRADE WITH AN EXCAVATOR.

WORKING PLATFORM NOTES:

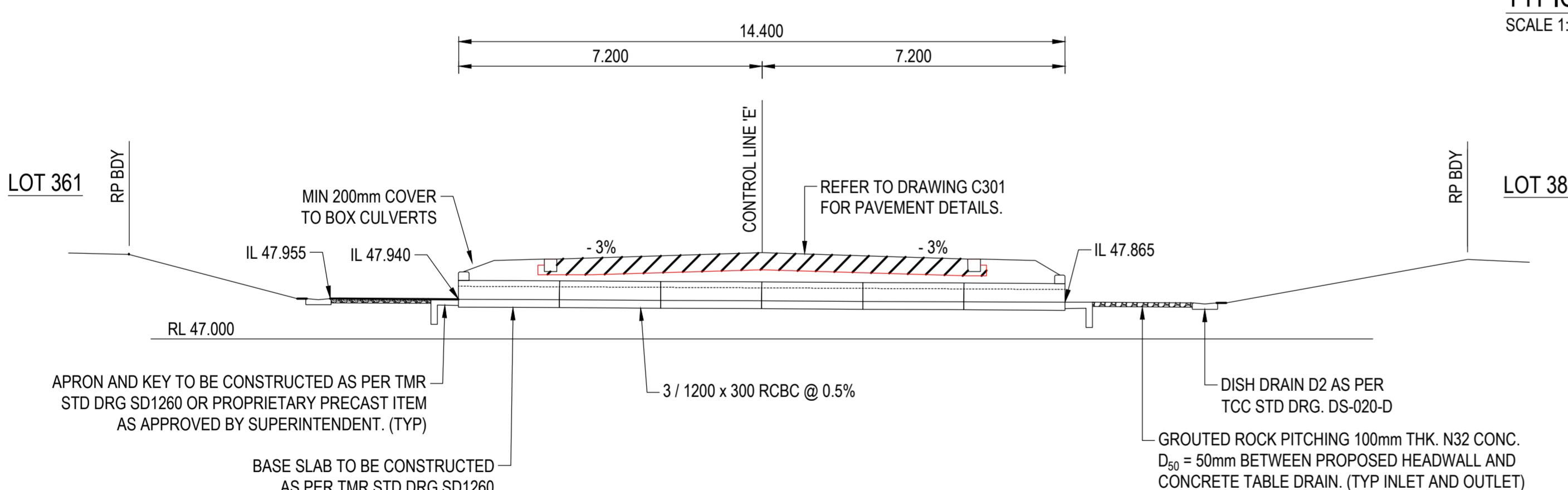
1. WORKING PLATFORMS TO COMPRIZE OF STRONG DURABLE ROCK WITH MAXIMUM SIZE OF 150mm AND BE WELL GRADED WITH SMALLER ROCK.
2. THE ROCK FILL IS TO BE PLACED IN 250mm THICK LAYERS AND COMPACTED/TRACK ROLLED USING A PAD ROLLER OR MEDIUM SIZED EXCAVATOR.



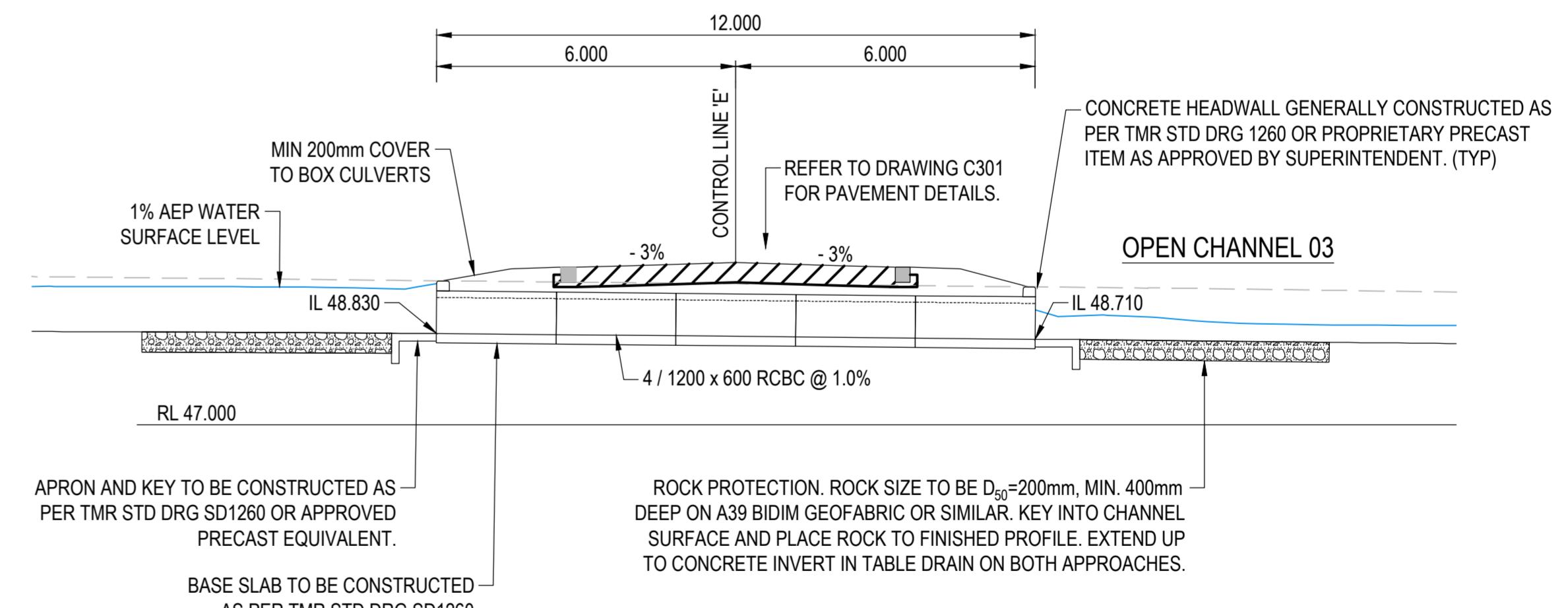
CULVERT 01 LAYOUT - DRUMMER STREET
SCALE 1:250



TYPICAL HEADWALL SETOUT
SCALE 1:100



CULVERT 02 LONGITUDINAL SECTION - INTERSECTION OF COPPER ST AND DRUMMER STREET
SCALE 1:100



CULVERT 01 LONGITUDINAL SECTION - DRUMMER STREET
SCALE 1:100

2 0 2 4 6 8 10m 5 0 5 10 15 20 25m
SCALE 1:100 @ A1 SCALE 1:200 @ A3 SCALE 1:250 @ A1 SCALE 1:1500 @ A3

APPROVAL ISSUE

6TH DECEMBER, 2024

REVISIONS	C	B.L.	12.03.24	HORIZ. DATUM			MT MARGARET GRID			CERTIFICATION  BRETT LANGTREE RPEQ NO. 11932
				VERT. DATUM	AHD		DRG. FILE	0944	DATE	
	B	B.L.	06.12.24	APPROVAL ISSUE			DESIGN	B.L.	NOV '24	COPYRIGHT 
	A	B.L.	18.11.24	PRELIMINARY ISSUE			DRAWN	C.B.P.	NOV '24	<small>These designs and drawings are copyright and are not to be used or reproduced without the written permission of LANGTREE CONSULTING PTY LTD (ACN 29 611 369 024). The contents of this drawing are electronically generated, are confidential and may only be used for the purpose for which they were intended. This is an uncontrolled document issued for construction purposes only and the contents are not to be reproduced or approved. Figure dimensions take precedence over scale. Do not scale from this drawing.</small>
	No.	BY	DATE	DESCRIPTION						


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e brett@langtreeconsulting.com.au

MT MARGARET ESTATE STAGE 12 - OPERATIONAL WORKS

NICKEL STREET

ALICE RIVER, QLD, 4817

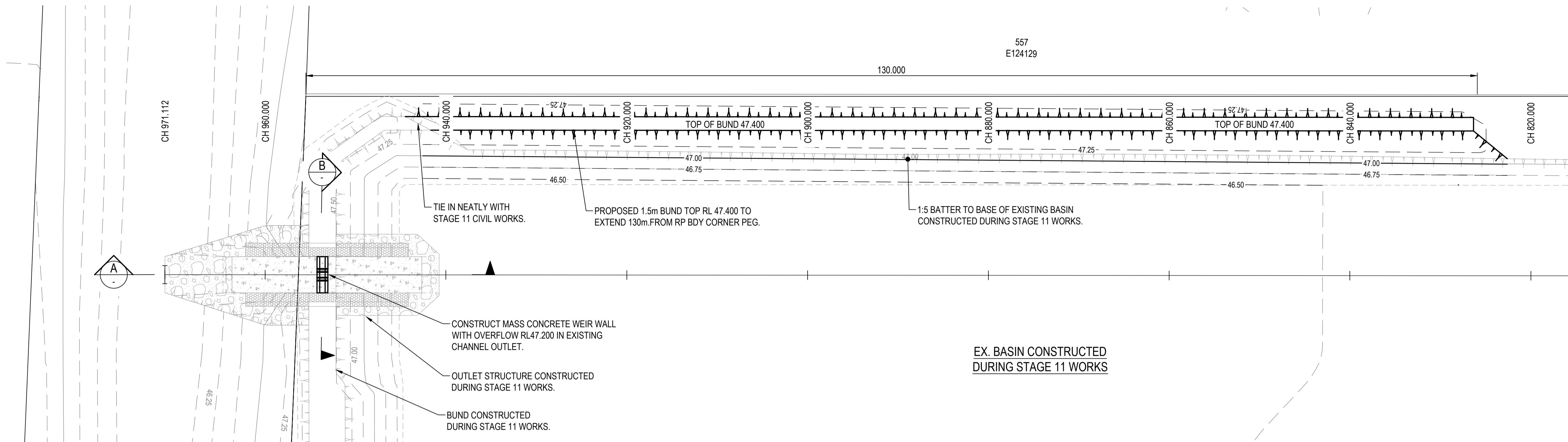
CULVERT LAYOUT AND LONGITUDINAL SECTIONS

SCALE AS SHOWN

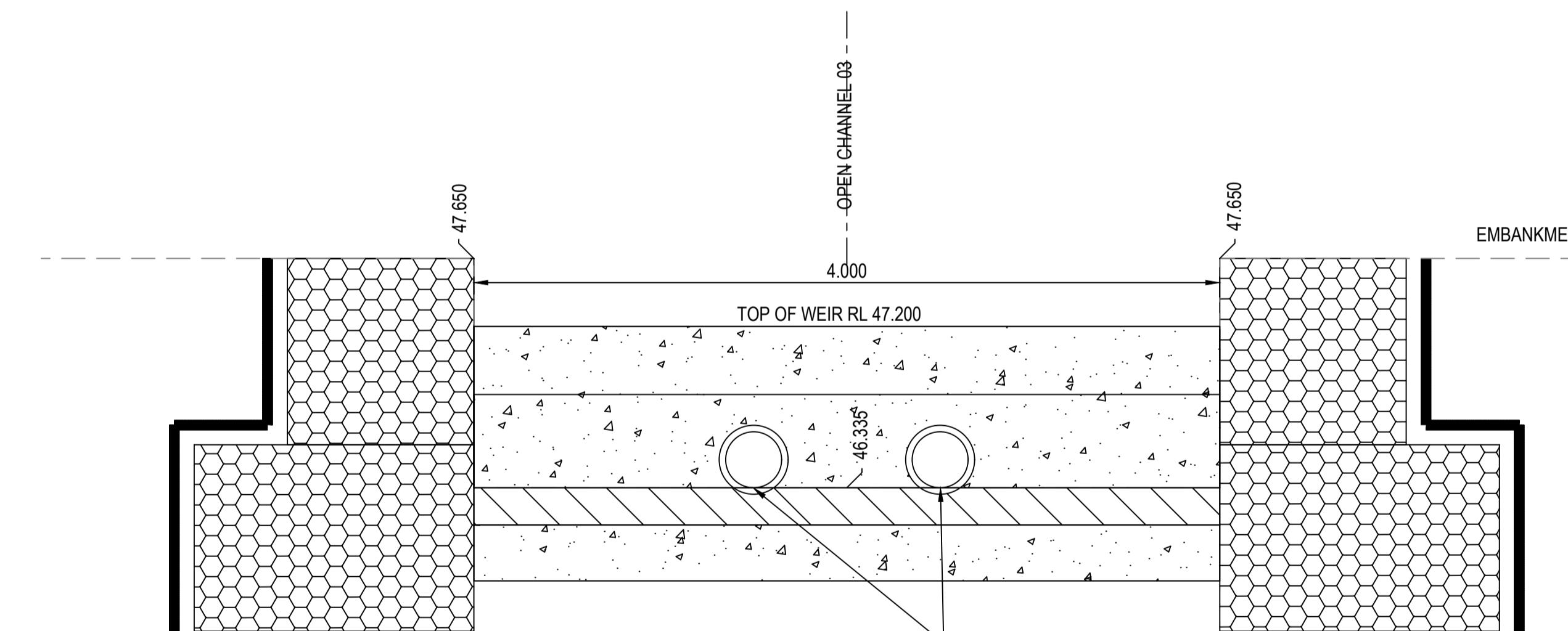
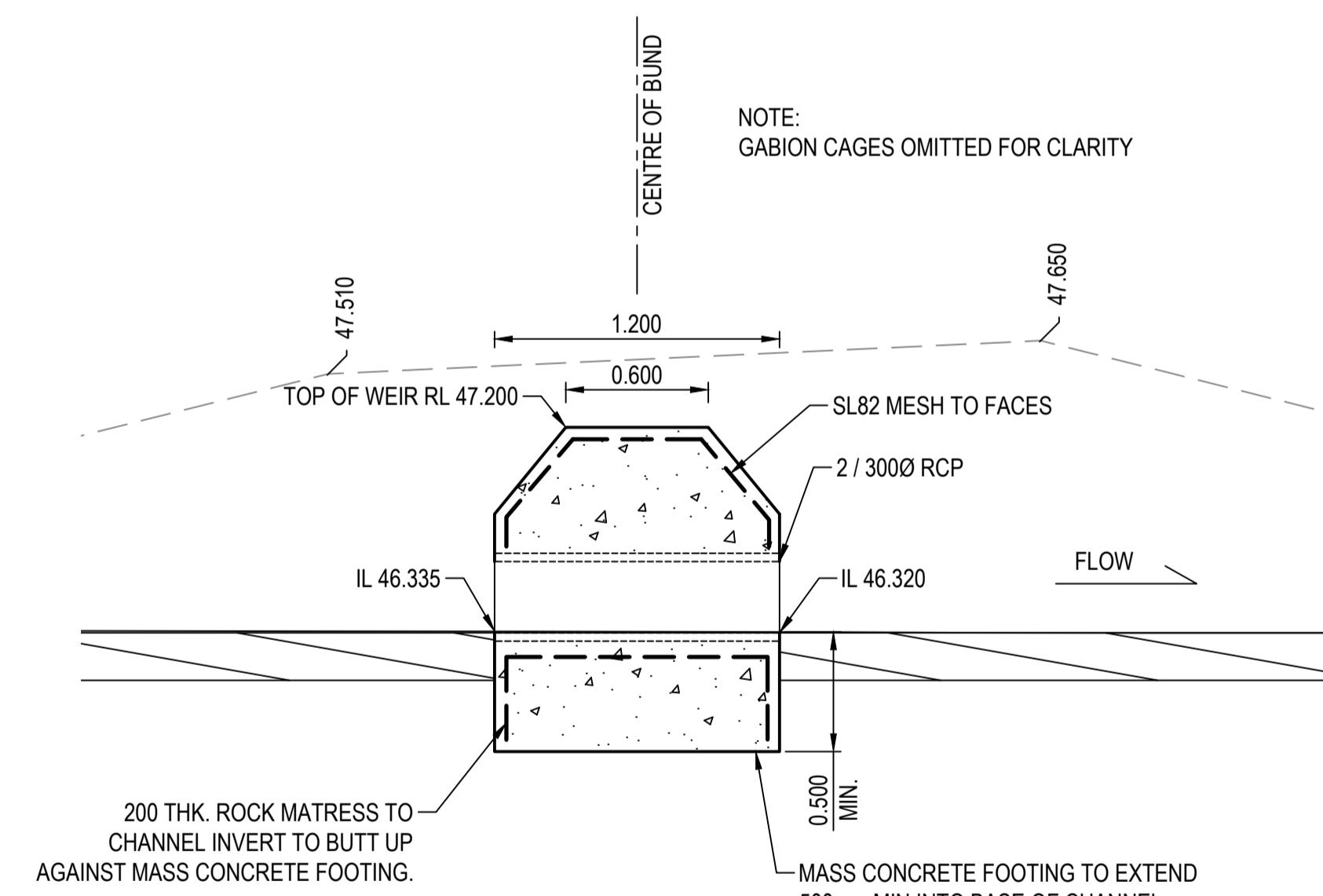
25 OF 28

A B C

DRG No. 0944 - C401

2
RP83836

Townsville City Council
Accepted Subject to Conditions
OPW24/0141
07/04/2025



0.5 0 0.5 1 1.5 2 2.5m 5 0 5 10 15 20 25m

SCALE 1:25 @ A1 SCALE 1:50 @ A3 SCALE 1:250 @ A1 SCALE 1:500 @ A3

APPROVAL ISSUE

6TH DECEMBER, 2024

REVISIONS				HORIZ. DATUM	MT MARGARET GRID		CERTIFICATION <i>Brett Langtree</i>	BRETT LANGTREE RPEQ NO. 11932	DRAWN	C.B.P.	NOV '24	AS SHOWN	
	VERT. DATUM	AHD		COPYRIGHT								SCALE	SHEET
B	B.L.	06.12.24	APPROVAL ISSUE		DRG. FILE	0944	DATE					26 OF 28	
A	B.L.	18.11.24	PRELIMINARY ISSUE		DESIGN	B.L.	NOV '24						
No.	BY	DATE	DESCRIPTION		DRAWN	C.B.P.	NOV '24						

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MT MARGARET ESTATE STAGE 12 - OPERATIONAL WORKS

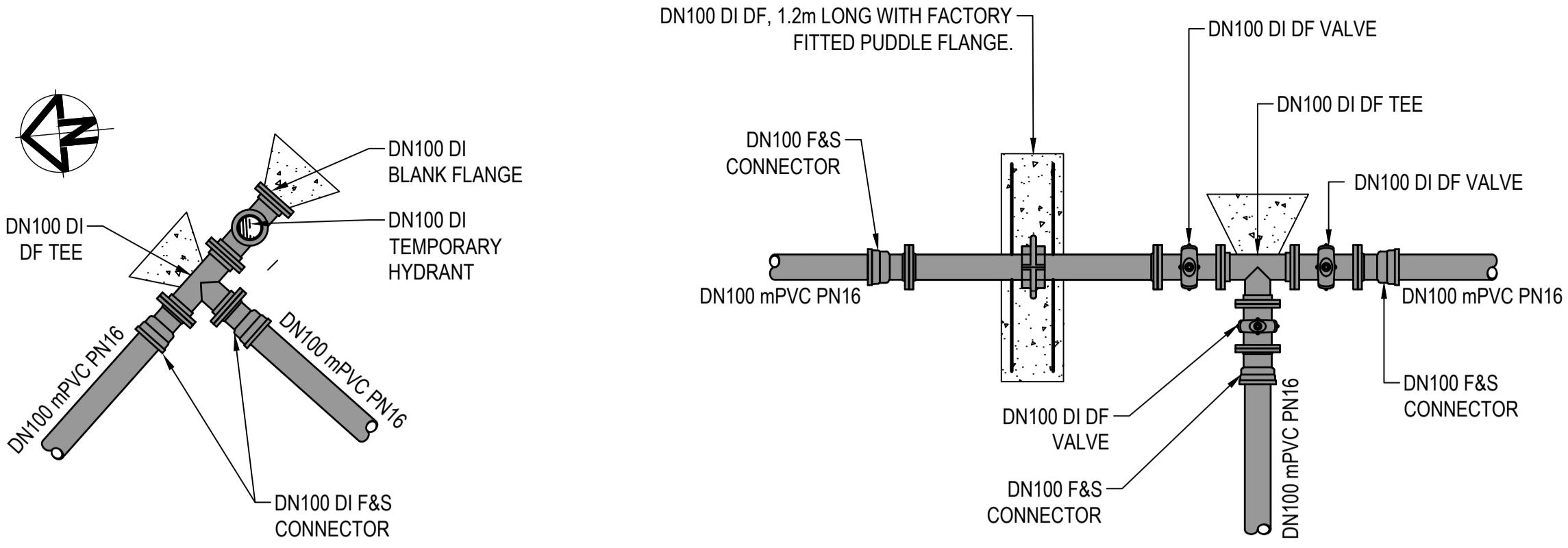
NICKEL STREET
ALICE RIVER, QLD, 4817,
DRAINAGE DETAILS

AS SHOWN

26 OF 28

A B

0944 - C402



TEMPORARY END DETAIL

SCALE 1:25

VALVE MARKERS, HYDRANT MARKERS AND PAVEMENT MARKINGS ARE TO BE INSTALLED/REINSTATED IN ACCORDANCE WITH LOCAL AUTHORITY REQUIREMENTS

ALL ENVIRONMENTAL PROTECTION MEASURES SHALL BE IMPLEMENTED PRIOR TO ANY CONSTRUCTION WORK, INCLUDING CLEARING COMMENCING.

ALL WATER AND SEWER CONSTRUCTION WORK SHALL COMPLY WITH THE REQUIREMENTS OF THE QUEENSLAND WORKPLACE HEALTH AND SAFETY ACT 2011.

CONTACT THE DIVISION OF WORKPLACE HEALTH AND SAFETY FOR INFORMATION PHONE : 1300 362 128

SYMBOLS LEGEND

PROPOSED FIRE HYDRANT	FH	EXISTING FH	○ FH
PROPOSED VALVE	X	EXISTING VALVE	X
PROPOSED SCOUR VALVE	*	EXISTING SCOUR	*
PROPOSED DEAD END	†	EXISTING DEADEND	†
PROPOSED REDUCER	>	EXISTING REDUCER	>
PROPOSED CONNECTOR	=	EXISTING ZONE VALVE	◎
PROPOSED WATER METER	* sc	EXISTING WATER METER	* sc

SERVICES (PUP) LEGEND

	EXISTING	PROPOSED
COMMUNICATIONS	C(*)	
DRAINAGE (unknown dia.)	D(*)	
DRAINAGE (known dia.)		
ELECTRICITY	E(*)	
O/H ELECTRICITY	v	v
GAS		
SEWERAGE	G(*)	
WATER MAIN	S(*)	
ABANDONED		
	W(*)	

(*) - DENOTES QUALITY LEVEL AS PER A.S. 5488-2013.

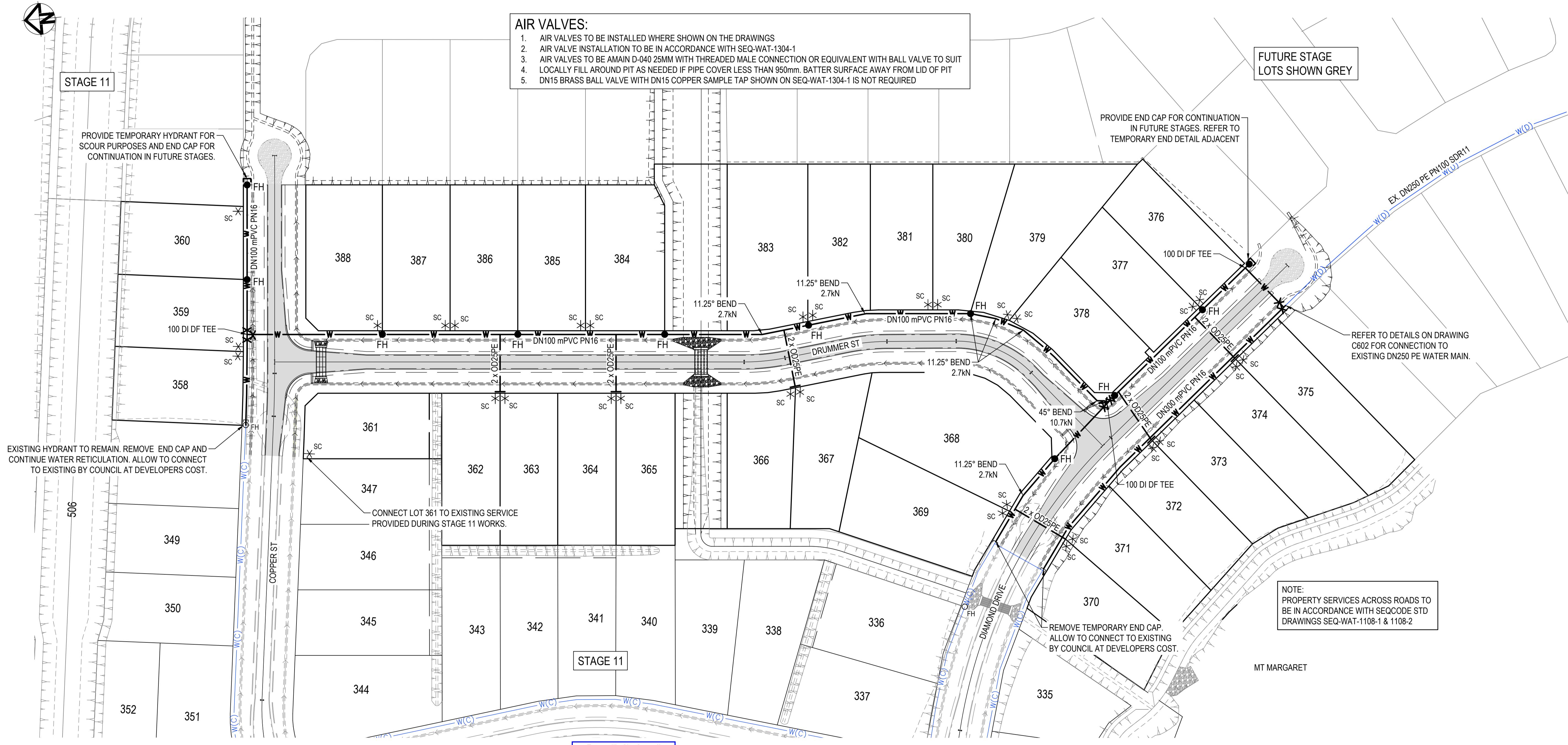
NOTE:
THRUST BLOCKS ARE TO BE LOCATED AT ALL HORIZONTAL AND VERTICAL BENDS AND ARE TO BE IN ACCORDANCE WITH SEQ-WAT-1205-1 AND 1207-1

STANDARD TEE DETAIL - DN100

SCALE 1:25

AIR VALVES:

1. AIR VALVES TO BE INSTALLED WHERE SHOWN ON THE DRAWINGS
2. AIR VALVE INSTALLATION TO BE IN ACCORDANCE WITH SEQ-WAT-1304-1
3. AIR VALVES TO BE A MAIN D-440 25MM WITH THREADED MALE CONNECTION OR EQUIVALENT WITH BALL VALVE TO SUIT
4. LOCALLY FILL AROUND PIT AS NEEDED IF PIPE COVER LESS THAN 950mm. BATTER SURFACE AWAY FROM LID OF PIT
5. DN15 BRASS BALL VALVE WITH DN15 COPPER SAMPLE TAP SHOWN ON SEQ-WAT-1304-1 IS NOT REQUIRED



NOTE:
PROPERTY SERVICES ACROSS ROADS TO BE IN ACCORDANCE WITH SEQCODE STD DRAWINGS SEQ-WAT-1108-1 & 1108-2

REFER TO DRAWING C001 FOR GENERAL LEGEND

HORIZ. DATUM

MT MARGARET GRID

VERT. DATUM

AHD

CERTIFICATION

Brett Langtree

RPEQ NO. 11932

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MT MARGARET ESTATE STAGE 12 - OPERATIONAL WORKS

NICKEL STREET

ALICE RIVER, QLD, 4817

WATER RETICULATION LAYOUT PLAN

APPROVAL ISSUE

6TH DECEMBER, 2024

SCALE 1:100 @ A1

SCALE 1:200 @ A3

27 OF 28

A B

DRG No. 0944 - C601

REVISIONS

B	B.L.	06.12.24	APPROVAL ISSUE	
A	B.L.	18.11.24	PRELIMINARY ISSUE	
No.	BY	DATE	DESCRIPTION	DRAWN C.B.P. NOV '24

GENERAL

G1. READ THESE DRAWINGS IN CONJUNCTION WITH SURVEY, OTHER ENGINEERING DRAWINGS, SPECIFICATIONS AND WITH SUCH OTHER WRITTEN INSTRUCTIONS AS MAY BE ISSUED. THE NOTES SHALL APPLY UNLESS OTHERWISE VARIED BY THE DRAWINGS OR SPECIFICATIONS.

G2. NOMINATION OF PROPRIETARY ITEMS DOES NOT INDICATE EXCLUSIVE PREFERENCE BUT INDICATES THE REQUIRED PROPERTIES OF THE ITEM. SIMILAR ALTERNATIVES HAVING THE REQUIRED PROPERTIES MAY BE OFFERED FOR APPROVAL.

G3. REFER ANY DISCREPANCY TO THE SUPERINTENDENT BEFORE PROCEEDING WITH THE WORK.

G4. DO NOT OBTAIN DIMENSIONS BY SCALING FROM THE DRAWINGS. ALL DIMENSIONS ARE IN MILLIMETRES AND ALL LEVELS IN METRES UNLESS NOTED OTHERWISE.

G5. VERIFY SETTING OUT DIMENSIONS SHOWN ON THE DRAWINGS BEFORE CONSTRUCTION AND FABRICATION IS COMMENCED.

G6. THE DATUM FOR ALL LEVELS IS THE AUSTRALIAN HEIGHT DATUM IN METRES AND PROJECTIONS ARE BASED ON PM 112800 WITH RL560.874.

G7. THE CONTRACTOR SHALL PROTECT FROM DAMAGE AND SUPPORT ALL SERVICES THAT MAY BE AFFECTED BY THESE WORKS.

G8. THE CONTRACTOR SHALL RETAIN AND PROTECT ALL SIGNIFICANT TREES UNLESS WRITTEN INSTRUCTIONS ARE ISSUED BY THE SUPERINTENDENT.

G9. THE SERVICES ON THESE PLANS HAVE BEEN DETERMINED BY SURVEY AND/OR FROM OLD RECORDS SUPPLIED ELECTRONICALLY. THEREFORE THE LOCATION OF SERVICES AND FEATURES MAY NOT BE ACCURATE OR COMPLETE.

G10. PRIOR TO CONSTRUCTION THE CONTRACTOR SHALL LOCATE:-

- ALL EXISTING SERVICES WHICH CROSS THE PATH OF THE NEW MAIN AND ALL EXISTING NEARBY SERVICES WHICH MAY BE AFFECTED BY THE PROPOSED CONSTRUCTION.
- EXISTING WATER SERVICES WHERE THE NEW WORKS CONNECT.

G11. PIPE LENGTHS TO BE CONFIRMED BY CONTRACTOR.

G12. DESIGN LEVELS TO BE CONFIRMED BY CONTRACTOR PRIOR TO COMMENCING CONSTRUCTION. CONTRACTOR TO ENSURE MIN. COVER OF 600mm IS MAINTAINED TO ALL PIPework. MINIMUM COVER UNDER ROADWAYS SHALL BE 900mm.

G13. PIPE LEVELS AND GRADES SHALL BE ADJUSTED AS REQUIRED AS PER TRC SUPERINTENDENT DIRECTIONS TO AVOID EXISTING SERVICES AND TO ALLOW FOR REQUIRED FITTINGS.

REINSTATEMENT OF CONCRETE ELEMENTS

RC1. CONCRETE ELEMENTS INCLUDING KERBS, FOOTPATHS, MEDIANES, DRIVEWAYS, ETC. SHALL BE SAW CUT TO ALLOW TRENCHING AND SHALL BE RETAINED WITH MATCHING SURFACE TEXTURE AND TREATMENT AS ADJOINING SURFACES. NEW SURFACE SHALL MATCH SMOOTHLY WITH ADJOINING SURFACES.

CONFINED SPACE NOTES

CS1. WARNING SIGNAGE IS TO BE PROVIDED FOR ALL CONFINED SPACES IN ACCORDANCE WITH AS1319 - SAFETY SIGNAGE FOR THE OCCUPATIONAL ENVIRONMENT.

CS2. ALL CONSTRUCTION AND O & M WORKS IN ACCORDANCE WITH AS2865:2009 - SAFE WORKING IN A CONFINED SPACE.

FENCING NOTES

F1. ALL TEMPORARY AND PERMANENT FENCING SHALL BE IN ACCORDANCE WITH AS1725.

BLASTING NOTES

B1. ALL BLASTING TO BE IN ACCORDANCE WITH AS2187 AND STATUTORY REQUIREMENTS.

B2. ALL AFFECTED UTILITIES AND STAKEHOLDERS ARE TO BE CONSULTED FOR APPROVAL IN ADVANCE OF THE WORKS.

B3. ALL RELEVANT APPROVALS ARE TO BE OBTAINED IN ADVANCE OF THE WORKS.

PIPEWORK

P1. ALL PIPE TO BE OF MATERIAL TYPE, CLASS AND COATINGS AS INDICATED ON THE DRAWINGS.

P2. LENGTHS OF PIPE, SPACING OF FITTINGS, BEND ANGLES, ETC. MUST BE CONFIRMED ON SITE PRIOR TO ORDERING MATERIALS. AMENDMENTS TO BE MADE ON SITE IF REQUIRED.

P3. ALL DI FITTINGS TO BE COATED AND LINED WITH FUSION BONDED EPOXY (AS/NZS 4158)

P4. ALL BURIED PIPE, UNO. MAXIMUM DI JOINT DEFLECTIONS :-

- DN300 AND LESS = 3°
- DN375 - DN450 = 2°
- GREATER THAN DN450 = 1°

NO DI SPIGOT SHALL BE INSERTED INTO PVC SOCKETS.

P5. CUT TO FIT PIPework TO BE DETERMINED ON SITE AND CARRIED OUT IN ACCORDANCE WITH MANUFACTURER'S SPECIFICATIONS.

P6. PVC-M PIPES WHERE SPECIFIED SHALL BE SERIES 2 WITH RUBBER RING JOINTS TO AS4765, UNLESS NOTED OTHERWISE.

P7. BURIED SLUICE VALVES SHALL BE INSTALLED IN ACCORDANCE WITH THE DETAILS ON WSA STANDARD DRAWING WAT-1301.

P8. ALL SPIGOT AND SOCKET ENDED VALVES AND VERTICAL BENDS OF DN200 AND GREATER TO BE RESTRAINED WITH STAINLESS STEEL HOLD DOWN STRAPS AND ANCHOR BLOCKS IN ACCORDANCE WITH WSA STANDARD DRAWING WAT-1207.

P9. PE SLEEVE SHALL BE PROVIDED ON ALL BURIED DI PIPE AND FITTINGS APPLIED IN ACCORDANCE WITH AS 3680 AND THE MANUFACTURER'S PUBLISHED INSTRUCTIONS.

P10. ALL SURFACE FITTINGS AND MARKERS FOR DECOMMISSIONED FITTINGS ARE TO BE REMOVED.

P11. MAXIMUM DEFLECTION FOR mPVC IS 1° AT JOINTS

P12. DETECTABLE MARKER TAPE TO BE LAID ALONG THE LENGTH OF ALL NON-METALLIC MAINS AT MIN. 150mm BELOW FSL

P13. ALL CREEK / OVERLAND FLOW CROSSINGS TO BE DI CL35.

TESTING

T1. PRESSURE TESTING OF PIPES SHALL COMPLY WITH CLAUSE 19.4 OF WSA 03-2011. HYDRAULIC TESTING OF PIPework SHALL BE CARRIED OUT AT THE LOWEST POINT OF THE LINE AT PRESSURE OF 1200 kPa.

FLANGES

F1. ALL FLANGES TO BE PN16 TO AS4087 WITH RAISED FACE FLANGES, UNO. CONSTRUCTOR TO CONFIRM FLANGE COMPATIBILITY FOR VALVES AND FITTINGS.

F2. ALL FLANGED JOINTS TO HAVE STAINLESS STEEL BOLTS (GRADE 316) AND NUTS (GRADE 308) COMPLYING WITH AS4087 AND FLANGED GASKETS COMPLYING WITH AS4087, UNO.

F3. ALL BURIED FLANGED JOINTS SHALL BE DENSO WRAPPED, OR APPROVED EQUIVALENT, FOR CORROSION PROTECTION.

VALVES

V1. ALL SLUICE VALVES ARE TO BE PN16 RESILIENT SEATED VALVES TO AS2638.2, COATED AND LINED WITH FUSION BONDED EPOXY (AS/NZS 4158) AND CLOCKWISE OPENING.

V2. SLUICE VALVE SURFACE BOX TO BE TYPE A1 IN ACCORDANCE WITH WSA STD. DRG. WAT-1302.

V3. ALL AIR VALVES ARE TO BE INSTALLED IN ACCORDANCE WITH WSA STD. DRG. WAT-1302.

HYDRANTS

H1. FIRE HYDRANTS TO BE SPRING "MAXI FLOW" 2000 TYPE MANUFACTURED TO AS3952.

H2. HYDRANTS ARE TO BE COATED WITH A THERMOSETTING EPOXY POWDER TO AS2638 AND AS3952.

GEOTEXTILE FILTER FABRIC

GF1. GEOTEXTILE SHALL BE BIDIM A14 OR EQUIVALENT, A NON-WOVEN FABRIC MADE FROM FILAMENTS OF SYNTHETIC FIBRES WHICH MEETS THE REQUIREMENTS OF APPENDIX J OF AS/NZS 2566.2:2002. THE GEOTEXTILE SHALL BE UNAFFECTED BY BACTERIA AND FUNGI AND BE SUITABLE FOR BURIAL.

ASBESTOS HANDLING

AH1. THE CONTRACTOR RESPONSIBLE FOR THE REPAIR AND REMOVAL OF ASBESTOS CEMENT WATER PIPES IS TO ENSURE COMPLIANCE WITH LEGISLATIVE REQUIREMENTS OF THE QUEENSLAND'S WORKPLACE HEALTH AND SAFETY ACT 2011, REGULATIONS 2011, HOW TO MANAGE AND CONTROL ASBESTOS IN THE WORKPLACE CODE OF PRACTICE 2011, AND HOW TO SAFELY REMOVE ASBESTOS CODE OF PRACTICE 2011.

AH2. ASBESTOS REMOVAL WORK MUST BE CARRIED OUT ONLY BY A LICENSED ASBESTOS REMOVALIST WHO IS APPROPRIATELY LICENSED TO CARRY OUT THE WORK. NO WORK ON ASBESTOS PIPES SHOULD TAKE PLACE UNLESS AN ASSESSMENT OF THE MATERIAL WAS UNDERTAKEN TO DETERMINE THE LEVEL OF RISK AND IDENTIFICATION OF APPROPRIATE CONTROL MEASURES TO MITIGATE THE RISK.

AH3. AS PER THE ASBESTOS REGULATIONS AN "ASBESTOS REMOVAL CONTROL PLAN" MUST BE COMPLETED PRIOR TO THE ASBESTOS REMOVAL.

AH4. WORKPLACE HEALTH AND SAFETY REGULATION 2011 REQUIRES THE CONTRACTOR TO NOTIFY WORKPLACE HEALTH AND SAFETY QUEENSLAND PRIOR TO ANY PLANNED ASBESTOS REMOVAL WORKS.

AH5. IMPORTANT ACTIONS BY THE CONTRACTOR DURING THE REMOVAL OF ASBESTOS PIPES ARE:

- THE WORK AREA SHOULD BE CORDONED OFF (E.G. WITH BARRIER TAPE) TO ENSURE UNPROTECTED PEOPLE CANNOT ENTER THE AREA;
- PEOPLE INVOLVED IN THE REMOVAL PROCESS SHOULD WEAR SUITABLE PROTECTIVE EQUIPMENT;
- THE PRODUCT SHOULD BE WET DOWN PRIOR TO REMOVAL, EXCEPT WHERE THIS WOULD BE DANGEROUS;
- DAMAGE OR BREAKAGE OF THE MATERIAL SHOULD BE MINIMISED;
- PLASTIC DROP SHEETS SHOULD BE USED, AND ALL SURFACES THEN WET WIPE AFTER REMOVAL IS COMPLETED;
- PEOPLE INVOLVED IN REMOVAL SHOULD GO THROUGH SOME FORM OF DECONTAMINATION PROCESS;
- WORK SHOULD BE PERFORMED IN WELL-VENTILATED AREAS, AND IN THE OPEN AIR WHERE POSSIBLE;
- POWER TOOLS SHOULD NEVER BE USED, AS THEY ARE LIKELY TO DISPERSE FIBRES INTO THE AIR.

AH6. IMPORTANT ACTIONS BY THE CONTRACTOR FOR DISPOSING OF ASBESTOS PIPES ARE:

- ASBESTOS IS GENERALLY DOUBLE BAGGED IN 0.2MM THICK PLASTIC BAGS AT THE WORKPLACE BEFORE BEING FULLY SEALED AND TAKEN AWAY. SEALED DRUMS MAY SOMETIMES ALSO BE USED TO DISPOSE OF ASBESTOS;
- THE SEALED ASBESTOS MUST BE TAKEN TO A LANDFILL APPROVED BY THE LOCAL AUTHORITY FOR SPECIALISED BURIAL.

AH7. ANY ASBESTOS TRANSPORT AND DISPOSAL MUST BE IN ADHERENCE TO THE REGULATIONS UNDER QUEENSLAND'S ENVIRONMENTAL PROTECTION REGULATION 2008 PART 2-ENVIRONMENTALLY RELEVANT ACTIVITIES.

THRUST BLOCKS

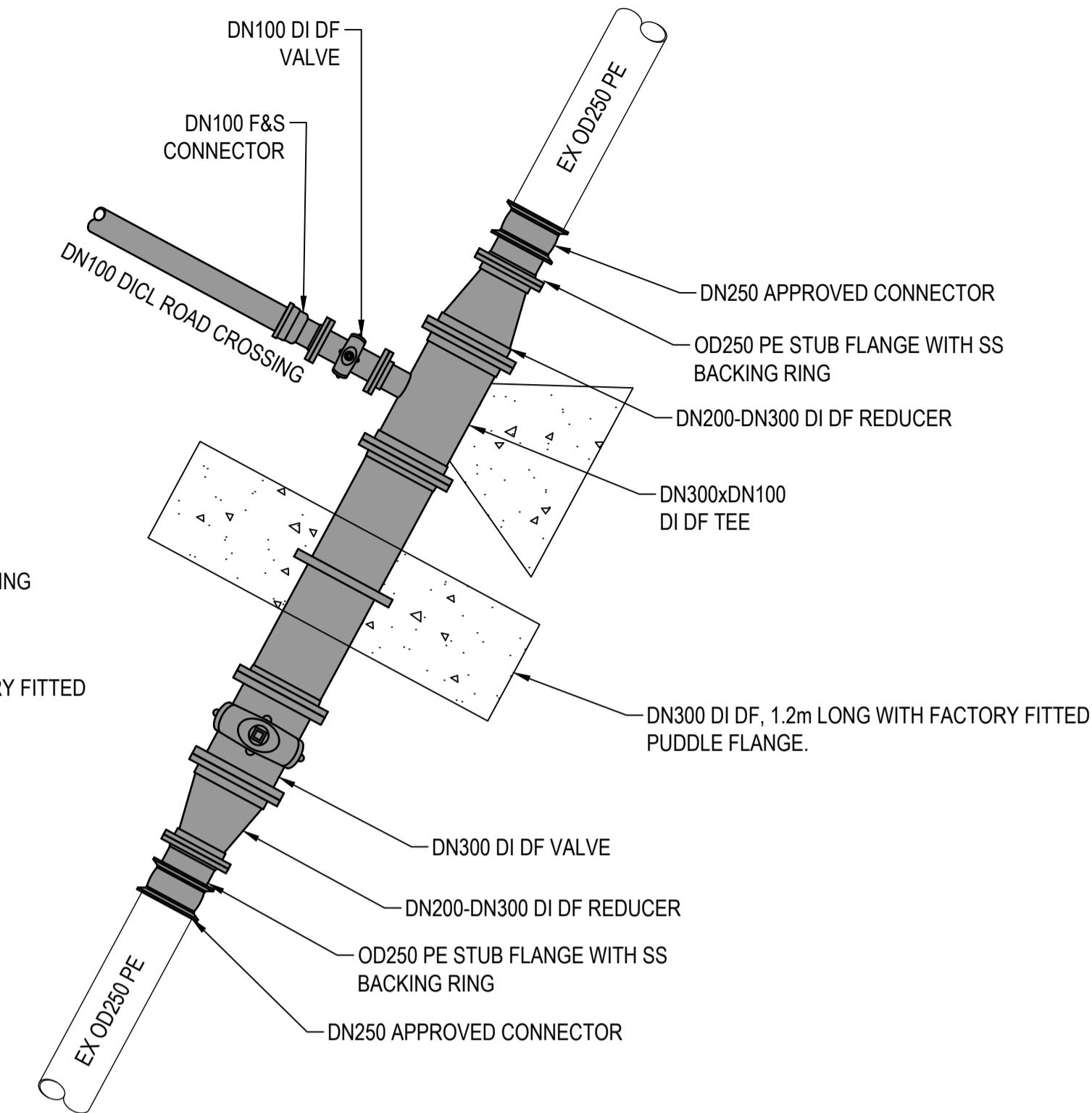
T1. THRUST BLOCK DETAILS SHALL COMPLY WITH WSA STANDARD DRAWING WAT-1205. ACTUAL SIZE OF THRUST BLOCK TO BE DETERMINED ON SITE BY THE SUPERINTENDENT.

T2. BENDS AND FITTINGS WITH RUBBER RING JOINTS TO HAVE CONCRETE THRUST BLOCKS IN ACCORDANCE WITH WSA STD DRG WAT-1205.

BEDDING AND BACKFILL

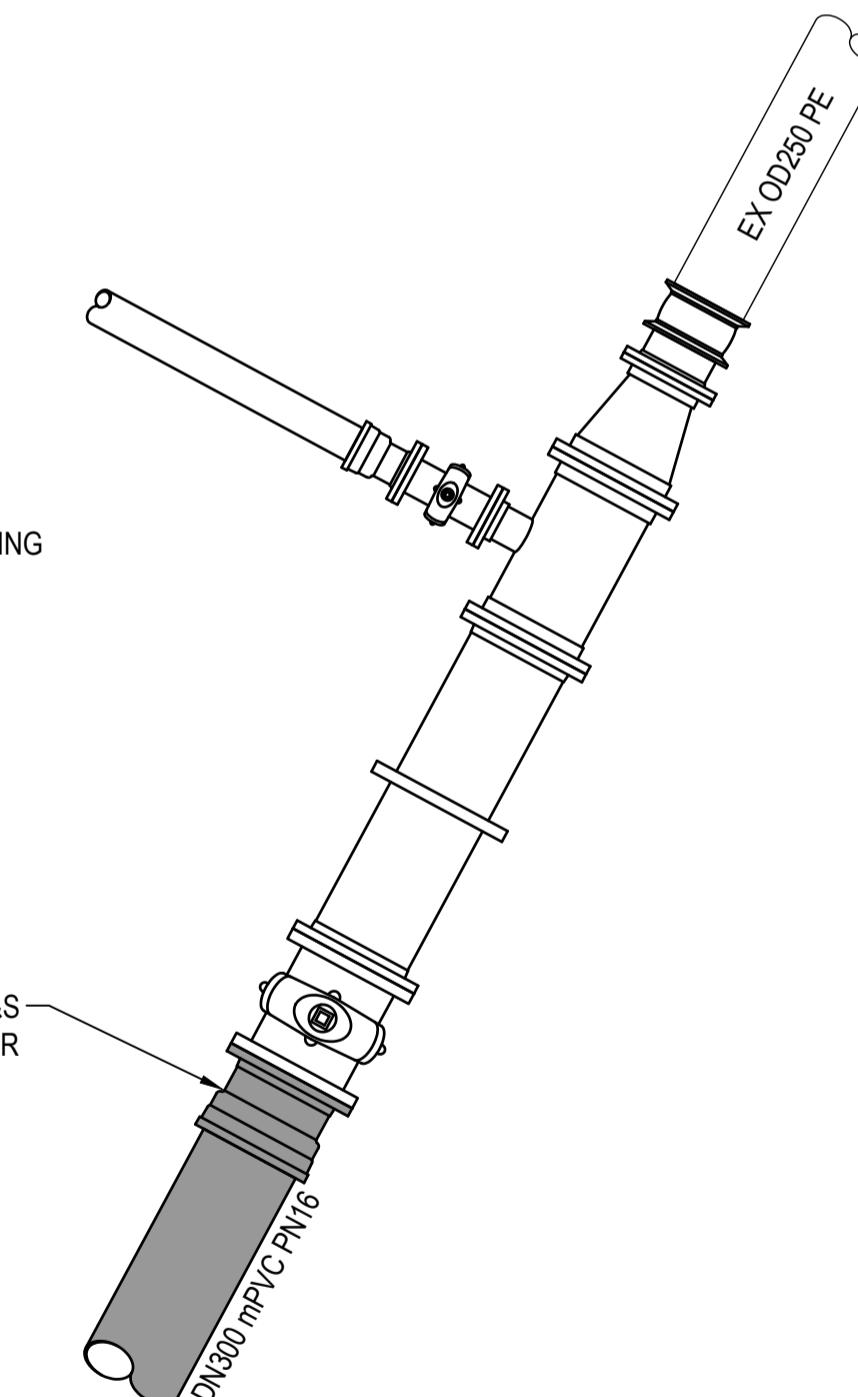
B1. TRENCHING, BEDDING AND BACKFILL TO COMPLY WITH WSA STD DRG WAT-1201 TO WAT-1204.

B2. UNLESS DIRECTED OTHERWISE TRENCH TO BE TYPE B..



CONNECTION TO EXISTING OD250 PE WATER MAIN - CONSTRUCTION

SCALE 1:25



Townsville City Council
Accepted Subject to Conditions
OPW24/0141
07/04/2025

CONNECTION TO EXISTING OD250 PE WATER MAIN - POST CONSTRUCTION

SCALE 1:25

APPROVAL ISSUE
6TH DECEMBER, 2024

REVISIONS	HORIZ. DATUM	MT MARGARET GRID	VERT. DATUM	AHD	CERTIFICATION	BRETT LANGTREE RPEQ NO. 11932	Langtree Consulting	MT MARGARET ESTATE STAGE 12 - OPERATIONAL WORKS	SCALE	AS SHOWN
									DRG. No.	0944 - C602
B	B.L.	06.12.24	APPROVAL ISSUE							
A	B.L.	18.11.24	PRELIMINARY ISSUE							
No.	BY	DATE	DESCRIPTION	DRAWN	C.B.P.	NOV '24	m e	0400 699 979 brett@langtreeconsulting.com.au		